

MARCH 1909

AMERICAN CARPENTER AND BUILDER



THE WORLD'S GREATEST BUILDING PAPER

MARCH

Important Features

MARCH

Special Features

Sanitation—the Cess pool and Its Dangers
The World's Largest Wooden Building
Perspective Drawing Simplified

Plans and Details

Four Attractive Modern Residence Designs
Insulated Doors for Cold Storage
A Well-planned Dairy Barn

Recommended Practice

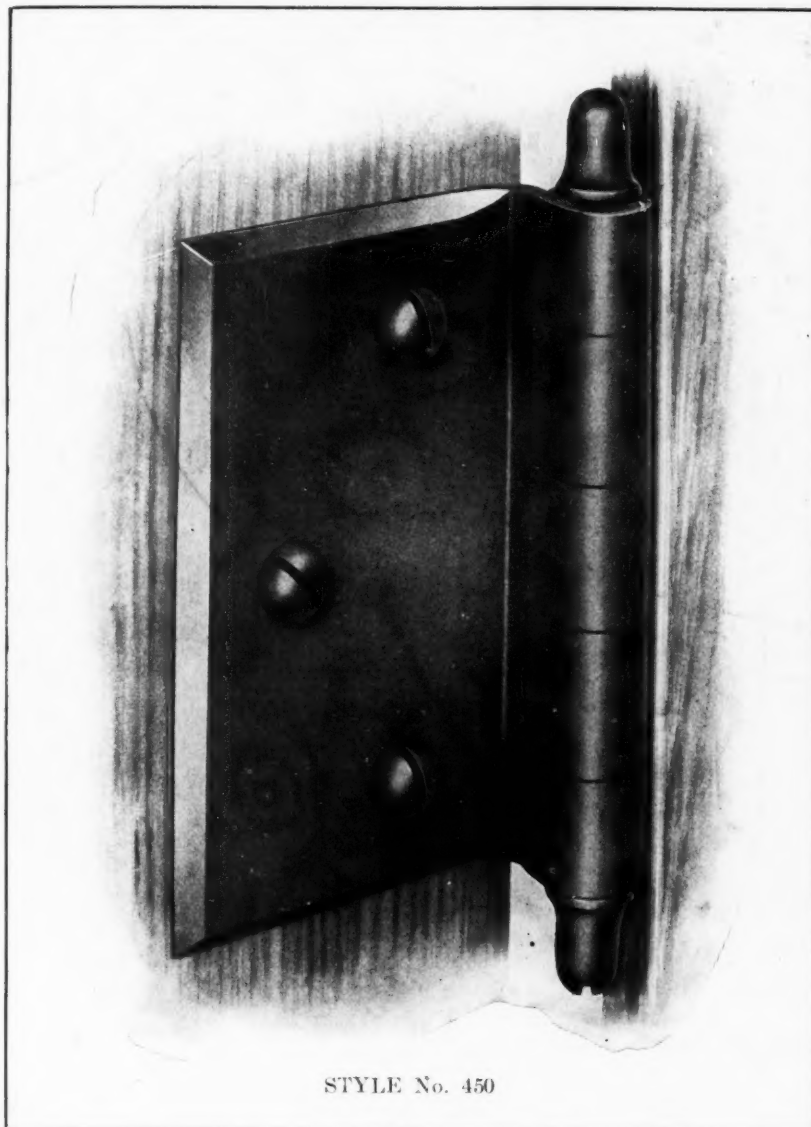
Steel Square—An Experiment in Roof Pitches
Power for the Woodworking Shop
Casement Window Construction



"We Initiate—Never Imitate"

"NATIONAL"

ORNAMENTAL BUTTS



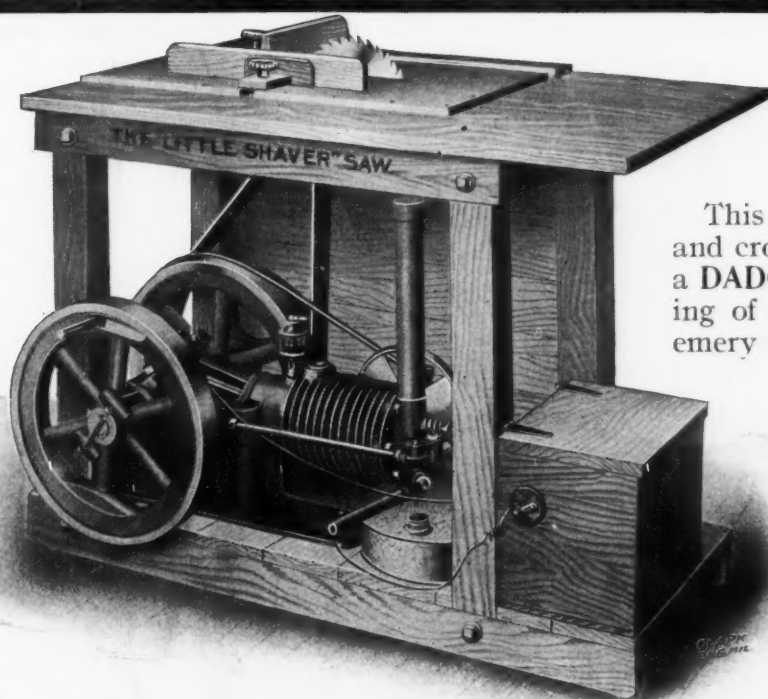
STYLE No. 450

THE BUTT "DE LUXE"

Perfection in Design, Finish and Construction.

It looks simple but it's hard to make. If you want to know all about it just drop us a card and ask for "Ornamental Ideas"

National Mfg. Co.
STERLING - - ILLINOIS



Do Your Own MILLWORK

This portable saw rig will rip and cross cut 2½-inch lumber, has a DADO head which will do plowing of window and door frames, emery wheel for sharpening tools, strong 2½-horsepower water-cooled engine, iron table fitted with gauges, the entire outfit strongly built, ready to start when it reaches you. Can be moved from job to job, total weight 615 pounds.

WRITE US

for folder and prices on this time and money saver.

Read the reading notice in this issue.

Inter-State Equipment and Engineering Co.

Old Colony Building

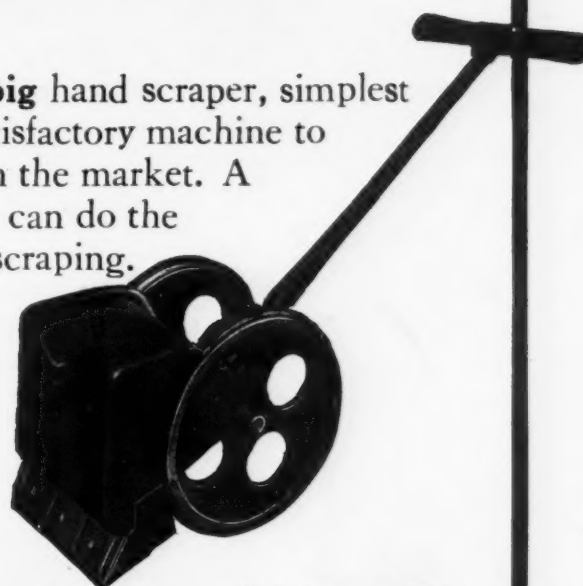
CHICAGO, ILL.

The "LITTLE SHAVER" FLOOR SCRAPER

The **weight** is where it should be, **directly on the knife** and not on the handle as in other scrapers.

is nothing but a **big** hand scraper, simplest and most satisfactory machine to work on the market. A boy can do the scraping.

Write
us for
Circular
and Price



Inter-State Equipment & Engineering Co., Old Colony Bldg.
Chicago, Ill.



The American Floor Surfacing Machine

is the original and only two-roll, self-propelling, dust collecting machine, protected by U. S. and Foreign patents, and is the only one that will satisfactorily surface any kind of a wood floor, and has been in general use by contractors, hardwood floor companies and others for over five years.

Its work is rapid, regular, smooth and even, because the power that drives the rolls propels the machine at the same ratio of speed.

Its work has established the standard for surfaced floors, and the only machine whose work is specified by leading architects and meets the requirements of contractors, owners and hardwood floor companies for finely finished, smooth, even floors.

It has surfaced and polished millions of square feet of the finest floors in America and Europe.

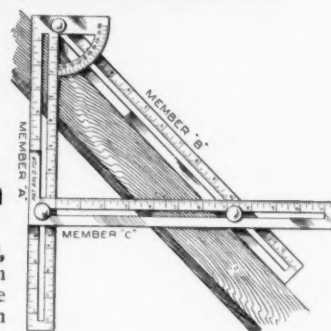
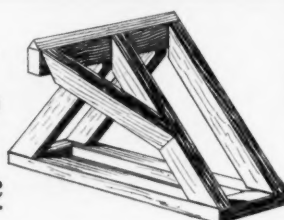
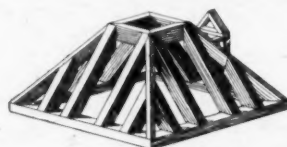
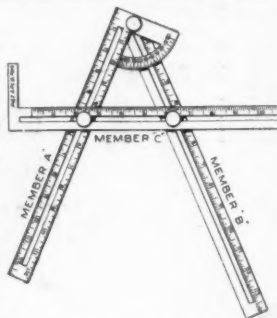
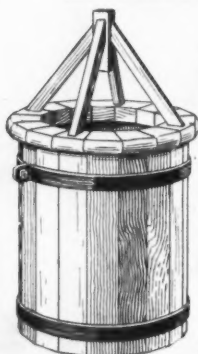
Don't be fooled with an imitation, but get a machine that does work in paying quantities, and can be operated in small rooms.

The only one whose construction is guaranteed and sold on its merits.

Write for our book "Surfacing Floors as a Business."

Manufactured by

The American Floor Surfacing Machine Company
TOLEDO, OHIO



A FREE Course

To anyone purchasing the ABC Protractor Square, we will teach the art of roof, stairway, and circular work absolutely free. This is an opportunity of your life time, as in a short time by the use of the ABC Protractor Square, you can become an

expert on work of this kind and demand as big wages as a carpenter that has made a life study of the common square. It is the simplest tool on the market, and yet the best tool. It is an adjustable triangle. The price of the square is \$3.00 and the course of instruction FREE. Send at once if you expect to get the order filled soon.

CROOKSTON TOOL CO., Crookston, Minn.

LATEST IMPROVED ALL IRON SWING CUT-OFF SAW

alone of its kind

Properly
Counter-
Balanced

Adjustable
Hanger

With Six Inch Adjustment

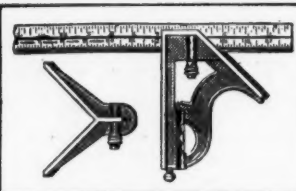
CAN BE HUNG
ANYWHERE

On the Floor
Under the Floor
On the Wall

With same ease of operation

Write for FREE Catalog
of our complete line.

LOVELL MACHINE WORKS, Gardner, Mass.



STARRETT

COMBINATION SQUARE

THE ORIGINAL : : THE MUCH IMITATED
Send for free Catalogue No. 186, of Fine Tools for all
kinds of mechanics.

The L. S. STARRETT CO., Athol, Mass., U. S. A.

CARPENTERS

In these days of close competition need the best
possible equipment, and this they can have in

**Barnes' Hand and Foot
Power Machinery**

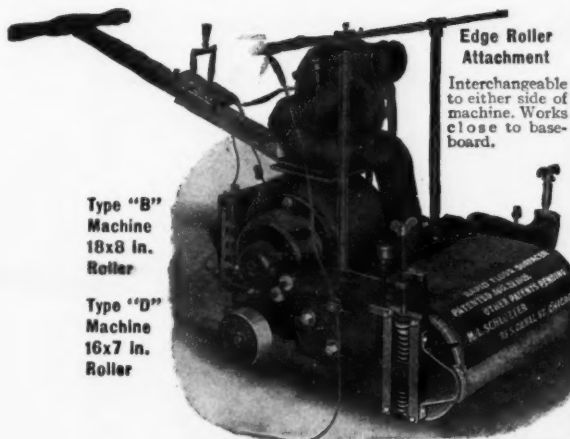
Our new foot and hand power Circular
Saw No. 4, the strongest, most powerful
and in every way the best machine of its
kind ever made. For ripping, cross cut-
ting, boring and grooving.

SEND FOR OUR
NEW CATALOGUE

W. F. & John Barnes Co

74 RUBY ST., ROCKFORD, ILL.





Edge Roller Attachment
Interchangeable to either side of machine. Works close to base-board.

Type "B" Machine
18x8 in. Roller

Type "D" Machine
16x7 in. Roller

Perfect Results Easily Obtained Schluter Rapid Floor Surfacer

Built on the only correct principle. Guaranteed to be **THE BEST** machine with which to produce an even, smooth surface on any kind of wood floor old or new, hard or soft, and in all buildings; Residences, Stores, Factories, Bowling Alleys, Roller Skating Rinks, Reception and Dance Halls, etc. **THE SCHLUTER** will remove all joints or warped edges, and leave the floor perfectly smooth. Will remove shellac, varnish, oil, wax, lime stains or the "muck" from skate wheels in a most satisfactory manner.

WE SELL MACHINE OR SURFACE YOUR FLOOR

EASY TO OPERATE. NO DUST. Over 500 contractors are now using our Machines. Made in two sizes. We will surface your floor. Mail us size of floor, new or old, and kind of electric power. In eight hours will sandpaper 4,000 to 5,000 sq. ft. once over. Write for new prices, catalogue and our **FREE TRIAL** proposition.

FREE Illustrated booklet containing full information sent free to contractors.

Sandpaper the Only Perfect Way

The **SCHLUTER RAPID FLOOR SURFACER** is so constructed that a roller, to which a sheet of sandpaper is quickly adjusted, is brought in contact with the floor surface while revolving at a speed of **600 revolutions a minute**. It is guaranteed to do the work cheaper and smoother than any other machine or method. This machine will surface from one to two thousand square feet in eight hours. Cost of sandpaper and electric power from \$1.00 to \$2.00 per day.

M. L. SCHLUTER 28 S. Canal St. CHICAGO



Fox Floor Scraper No. 1

A Perfect Machine for Perfect Work.

Remember—THE FOX PAYS FOR ITSELF

"Your hardware dealer will order it for you. They all handle the Fox Floor Scraper because it does better work and more of it in less time than any other machine on the market and is conceded by all to be the easiest running machine ever built."

Fox Cabinet Scraper works like a plane. A FINE TOOL for fine work. Price, express prepaid, \$1.25.

(Write us for Catalogue.)



Fox Cabinet Scraper



FOX MFG. CO.

Milwaukee, Wis.



VICTOR TILE



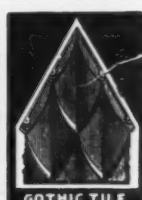
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MONTROSS METAL SHINGLES

QUICK WORK AND LARGE PROFITS
The natural result of laying a **MONTROSS METAL SHINGLE ROOF** Handsome, fireproof, durable. Always pleases the customer. Laid with hammer and nails; no soldering. Catalog!



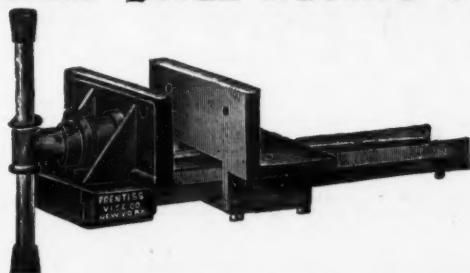
EASTLAKE SHINGLE



GOTHIC TILE

MONTROSS METAL SHINGLE CO. CAMDEN, N. J.

BLAKE QUICK ACTING VISE



For Cabinet Makers and Wood Workers. Simplest—Strongest—Cheapest—Best
Send for Catalogue of all kinds of Vises
PRENTISS VISE COMPANY, MAKERS
44 Barclay Street, New York, U. S. A.

Practical Art Metal Ceilings



Quickly and easily applied. We are the only manufacturers who cut the beads in the dies after casting. **Result**—Square and accurate plates—which will save you time and labor in cost of erection.

Send for Catalogue No. 2 which shows 200 new and original designs.

Manufactured by
Wm. Foster & Sons Co., Inc.
Springfield, Illinois

Also manufacturers of Radiator Shields, Fire Proof Window Frames and Sash, Gal. Iron Fronts, Hip Shingles, Cornice, Skylights

**Carry
A Ton,
Last
A LIFETIME—**

A pair of our smallest size

Wall Brackets.

There isn't room here to tell you
how cheap or how convenient they are.

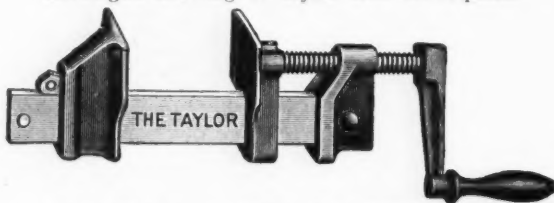
Write for Catalogue and Special Trial Offer.

ARE YOUR CLAMPS GIVING BEST RESULTS?

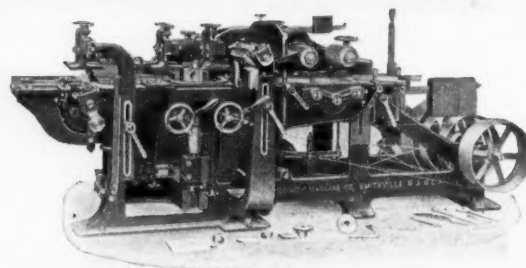
Do you know about our improved gripping device?

It Saves Time,
the special grade of steel we use?

Our Clamps are warranted unbreakable in use.
Catalogue showing 19 styles sent on request.



JAMES L. TAYLOR MFG. CO.
BLOOMFIELD, N. J. U. S. A.



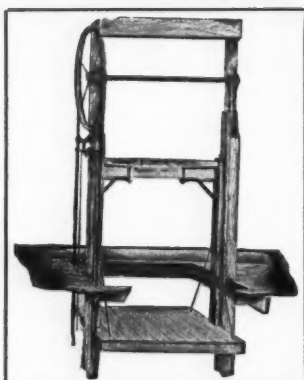
It's the Molder

that fills a most important position
in a wood-working plant. For this
reason: Manufacturers insist on having
a machine that has proven itself
through service.

The cut shows our **No. 105-A 12-in.
Molder.** We have hundreds in oper-
ation throughout the world and they
are adding daily to their reputations
through their continued good service.

Write Us for Special Circulars and Prices

H. B. SMITH MACHINE CO.
SMITHVILLE, NEW JERSEY, U. S. A.



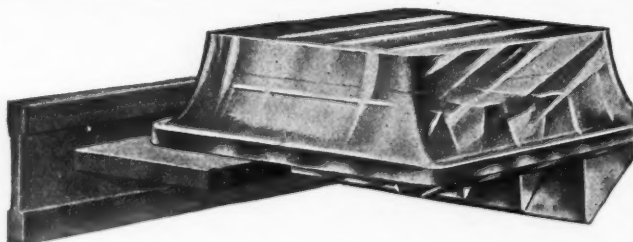
PERFECTION ELEVATORS

**ARE
"BEST BY EVERY TEST"**

**For PASSENGER or FREIGHT SERVICE in Factories, Stores and
Dwelling Houses.**

Our Elevators are noted for their Easy Running and Serviceable Qualities. They are practi-
cally self contained and can be erected by any carpenter in a few hours. We furnish Plans for
erecting. When writing, state your requirements.

Sidney Elevator & Mfg. Co., Sidney, O.



100 Per Cent More Light

IN DARK INTERIORS BY THE USE OF

3-WAY PRISMS

**Prism Glass of All Kinds, Vault Lights, Window
Lights, Skylights and Wired Prisms**

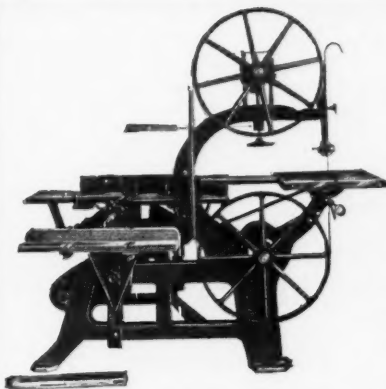
See Pages 606 to 614 in Sweet's Index, at all Architects' and Builders' Offices

AMERICAN 3-WAY PRISM CO.

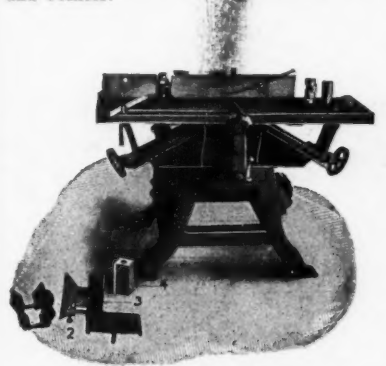
Catalogue on
request

134 N. 10th Ave., PHILADELPHIA

NOTICE



Universal Wood Worker, fitted up with Band Saw, Mortising Attachment, Shaper and Jointer.



Universal Wood Worker, fitted up with Jointer, Shaper and Two Side Molder.

We give an ironclad guarantee with every machine that they must be exactly as represented and described in catalogue and folder. If they are not as we represent, we will give the purchaser the opportunity of returning them to us, and we will refund his money, paying all freight charges. Every attachment is guaranteed to work perfectly on the Universal Wood Worker.

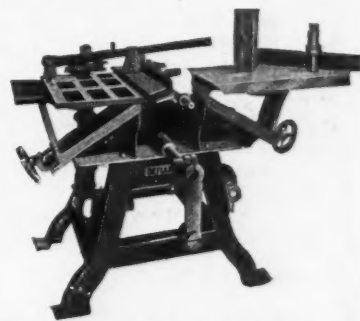
Seventy-five per cent of our Universal Wood Workers, which we have sold within the last eight months, have gone to the contractor and builder. A great number of them have discarded their Universal wood workers of other makes. **WHY?** There must be a reason for this, as a contractor would not discard a machine that was giving him perfect satisfaction. **ANSWER:** Because our **FAMOUS** Universal Wood Worker is the only practical woodworking machine on the market today for the contractor and builder. It will save him from 10 to 20 per cent in getting out his work, over and above any other make universal wood worker on the market. It is so compact, taking up the least possible room, and can be placed in a small shop, being operated by very little power, which will enable a great many contractors to place this machine, where it would not have been possible for them to put an entire outfit of woodworking machines in their shops if they were compelled to buy the single tools. Our catalogue "B" is furnished free, explaining thoroughly the workings of this **FAMOUS** machine, which consists of a jointer, shaper, band saw, saw table, boring machine, mortising machine, single end tenoner, pony planer, drum and disc sander and emery grinder, all combined in one tool. It can also be arranged for sash sticking, molding and matching.

WRITE US AT ONCE

The Sidney Tool Co.
Sidney, Ohio



Universal Wood Worker, equipped with our Planing Attachment, will plane up to 4 in. thick and 10 in. wide; also arranged for doing two side molding, matching and sticking.



Universal Wood Worker, fitted up with the Single End Tenoning Attachment, with traveling table and hold down lever.

THE ADJUSTABLE FLOOR SCRAPER.

HANDLE adjustable to tall or short man.

WEIGHT over blade adjustable as desired.

VERTICAL angle of blade to floor adjustable.

LATERAL (shear cut) angle of blade on floor adjustable.

*Pronounced by mechanics as the only perfect floor scraper made.
Send for Mechanical Drawing illustrating construction in closest detail.*

Long Distance Telephone Mfg. Co.

SOUTH BEND, INDIANA.

Floor Scraper Dept.

FAR AHEAD for Smooth, easy work and holding edge will be YOUR VERDICT ON TRYING

CHAPLIN'S IMPROVED PLANES

Patented Feb. 14, 1899; Oct. 30, 1900; Dec. 24, 1902

We invite the
Severest
Comparative
Tests

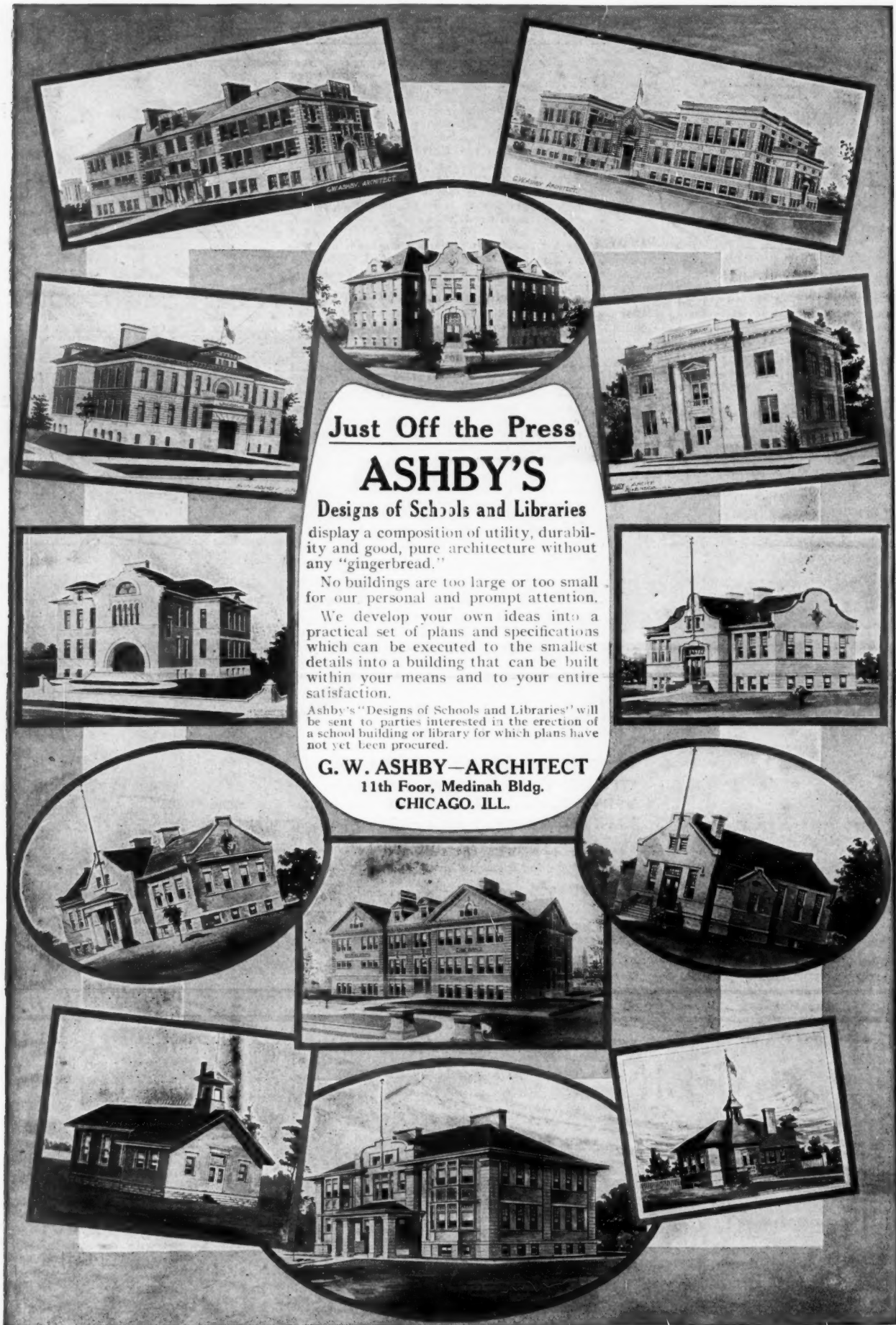


We want you to have a copy of our booklet

"A 'Plane' Talk About a Good Plane!"

We want you to have a copy, for it is a booklet you really need in your business. We'll gladly send you this booklet with our compliments, promptly upon receipt of your request.

Tower & Lyon Company, 95 Chambers Street, New York



Just Off the Press
ASHBY'S
Designs of Schools and Libraries

display a composition of utility, durability and good, pure architecture without any "gingerbread."

No buildings are too large or too small for our personal and prompt attention.

We develop your own ideas into a practical set of plans and specifications which can be executed to the smallest details into a building that can be built within your means and to your entire satisfaction.

Ashby's "Designs of Schools and Libraries" will be sent to parties interested in the erection of a school building or library for which plans have not yet been procured.

G. W. ASHBY—ARCHITECT
 11th Floor, Medinah Bldg.
 CHICAGO, ILL.



The WEBER DOUBLE ACTING Floor Scraper

The Weber is the Highest Priced Scraper on the Market

Other floor scrapers may be cheaper than The Weber. But I am not selling The Weber on price: it sells on quality. I could not afford to make The Weber cheaper and, anyhow, if I did, you would not want it. I am trying to build a scraper that will last a lifetime and do perfect work as long as it holds together. Isn't that what you want? I am out to build reputation on each and every scraper I sell.

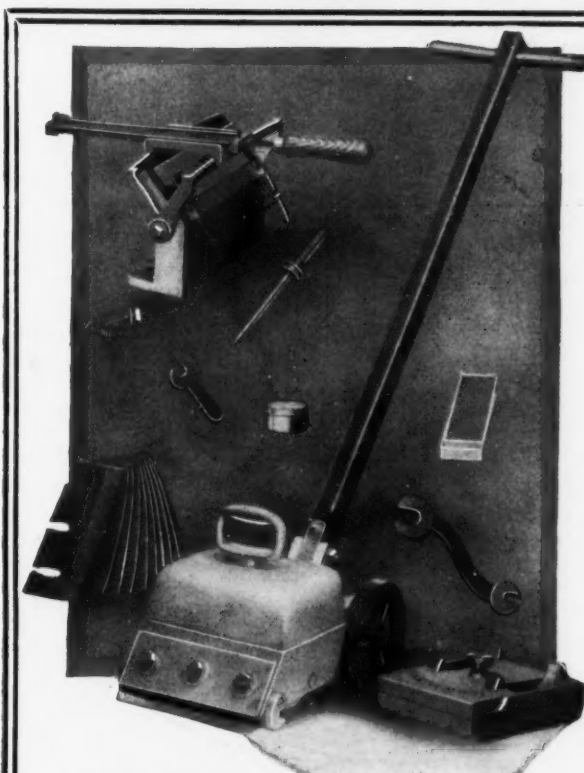
Although The Weber has been on the market less than a year, it is in use in fully two thirds of the States of the Union. Of its users, over one-third have formerly been working with other scrapers, which sell for less money than mine, but are more expensive in the end.

Could I say more to convince you of The Weber's superiority? Doesn't this showing give you an idea of why I have sufficient confidence in my machine to offer you a Free Trial? I offer you this Free Trial to let the machine itself convince you—to let you fully understand its five different attachments, and its many valuable features, such as its adjustable blade holders, its double acting features and, especially, its flexible frame which enables me to guarantee that The Weber will not jump and chatter or leave waves in a floor. Do not buy a floor scraper until you have tried The Weber. Write at once for my booklet and full particulars of my Free Trial Offer.

THE WEBER AUTOMATIC SHARPENING DEVICE

enables the operator to sharpen a blade without removing it from the machine. The blade can't be sharpened at wrong angle—so simple a child can use it.

JOHN F. WEBER, PRESIDENT, WEBER MFG. CO. 670 71st AVENUE WEST ALLIS, WIS.



The Acme Floor Scraping Outfit consists of the Floor Scraper, Blade Sharpener, Sander, One Dozen Blades, File, Gauge, Oil Stone, Two Wrenches, Two Bolts, Burnisher and Box of Tallow

TO SUCCESSFULLY SCRAPE

a floor the **BLADE** must have a **PERFECT CUTTING EDGE**. There is not one man in a thousand who can put the **PROPER EDGE** on a floor scraping blade **BY HAND**, therefore I say that unless **A DEVICE IS FURNISHED** that will enable **ANY MAN TO SHARPEN THE BLADES PERFECTLY**, then a floor scraper is of little use to its owner.

The **ACME BLADE SHARPENER** which accompanies the **ACME FLOOR SCRAPER** is the **ONLY DEVICE** of its **KIND** on the market and as it is **THOROUGHLY COVERED BY PATENTS** it cannot be supplied by any other manufacturer. It is so simple that a boy can operate it, and it **NEVER FAILS** in its purpose. Sharp blades with just the **RIGHT EDGE** are **ALWAYS ASSURED**.

The **ACME FLOOR SCRAPING OUTFIT** is the **ONLY COMPLETE EQUIPMENT** on the market, and in order to permit you to investigate into the truth of this statement I offer to send the machines to you on **ONE WEEK'S FREE TRIAL**, at my expense.

SEEING IS BELIEVING. I am ready to show you. Will you be shown? Booklet fully describing this outfit mailed on request. Send for it today.

JOS. MIOTKE, 247 Lake Street, MILWAUKEE, WIS.

3 New Features

These three features form the Ackermann New Knife Sharpener—the invention that ensures a perfect cutting edge **all** the time. It means **better** floor scraping than hitherto—it means **quicker** floor scraping. Not a talking point but a device that saves dollars for every user.

Ackermann Floor Scraper

The Ackermann is the **best** floor scraper. We guarantee it to do more, better and easier work than any other machine on the market. If it doesn't you get one free. Send for details of our offer under which any contractor may test the Ackermann Rapid Floor Scraper and Ackermann's New Knife Sharpener free at our expense.

J. B. ACKERMAN CO., 100 Pearl St., Grand Rapids, Mich.

Our Guarantee is a Protection to every Purchaser.



ONLY PERFECT FLOOR SURFACING MACHINE

Will do perfect job on any kind
of floor, whether even or uneven.

A Boy Can Operate It

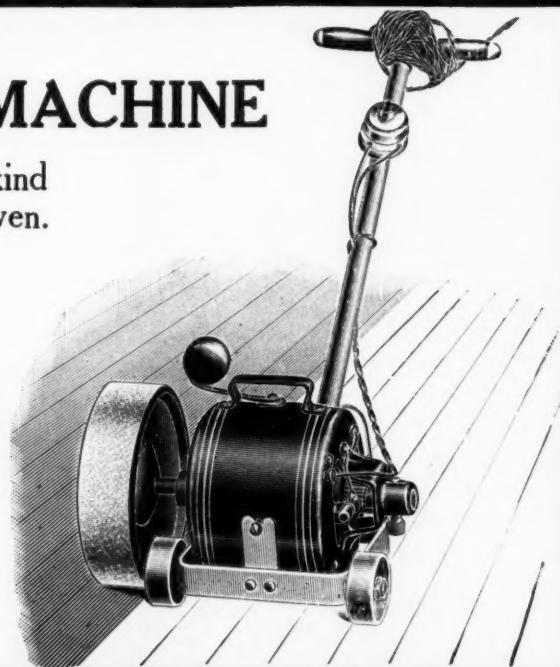
Sold on absolute guarantee. Price complete
with motor switch and 50 feet electric cord
ready to connect to light socket, \$125.00

For Further Information Write

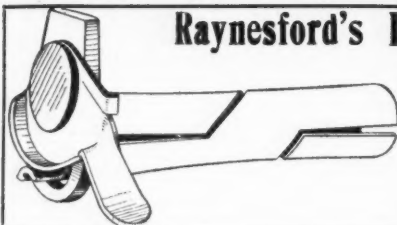
MARSH CO.

970 Old Colony Building,

Chicago, Ill.



Raynesford's Improved Bench Stop



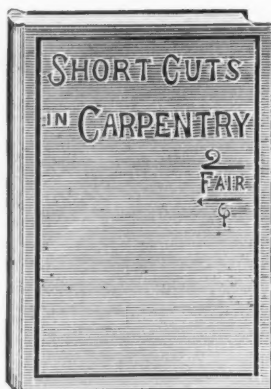
will hold any thickness of work equally
well from $\frac{1}{4}$ inch up to 2 inches and hold
it firmly. Can be operated more quickly
than the wooden plug you are used to.
Does not stick out to get broken off, to
hurt you, or tear your clothes.

Try one and be convinced.
Write for circular or sent Post
Paid for \$1.00.

RAYNESFORD & SONS, Ellis, Kan.



Raynesford's Improved Bench Stop at Work



A VALUABLE NEW BOOK JUST ISSUED

SHORT CUTS IN CARPENTRY

A COLLECTION OF NEW AND IMPROVED METHODS OF LAYING OUT
AND ERECTING CARPENTERS' WORK

By ALBERT FAIR

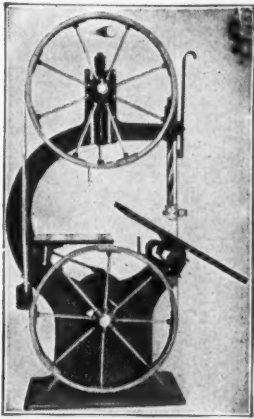
TO LAY OUT and erect carpenters' work accurately and quickly is an accomplishment desired by all progressive carpenters. In this book, not only the simple rules for the short cut are given, but also the "reason why," so that the carpenter can apply his knowledge to many problems besides those given in this book.

The book contains 90 large (5x7-inch) pages, illustrated by 75 engravings in the text and a large folding plate, finely printed on ivory-finish paper and handsomely bound in green art canvas. You run no risk in ordering this book as we will cheerfully refund your money if you are not pleased.

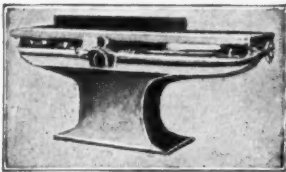
PRICE ONLY 50 CENTS POSTPAID

This useful, practical and unique instruction book contains remarks about the carpenter and his work; the difference between carpenters and joiners. Description of the various carpenter and joiners' work about a house illustrated with a large folding plate giving the names of the various parts of doors, windows, trim, etc. (This chart alone is worth the price of the book.) The practical use of geometry in laying out carpenters' work explained in a different way so the reader will know "why." How to obtain various miters, both for straight and curved work. How to make a miter box. Descriptions of different kinds of moldings. Bending moldings around circles and the art of kerfing explained simply and accurately, telling why it is done and how to do it. Rake moldings and how to lay them out fully explained, and several short-cut ways of doing it. How to find the corner brackets for coves. The use of the steel square in finding various pitches, degrees, miter cuts for polygons, etc. Use of the 2-foot rule in describing various figures when no other tool is at hand. The selection and use of glue. Hints on saving time when working on hardwood. The art of blind nailing. Setting door jambs, fitting and hanging doors. Fitting windows. How to cut pockets in window frames. Remarks on framing. Short cuts in placing siding. Siding a circular tower. Shingles required to cover a given roof area. Laying out octagon shingles. Quick method in finding bevel of shingles for gable. Framing a floor with short timbers. Building up a beam. Laying floors. Laying wood carpet. Constructing dished floors. The art of veneering on a small scale. Hints on inlaying. Roof framing explained on a new principle whereby you know the reason why the square is used and how to use it for different forms of roofs. How to find the sizes and cuts of braces. Bevels for hoppers. Making wheat bins. Quick method for beveling fence posts. Shaping a flag pole. Quick method of obtaining the bevel of tank staves. Making and placing well curbs, etc., etc.

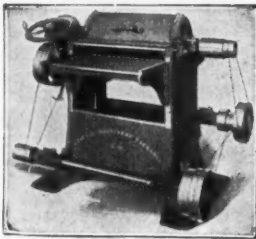
INDUSTRIAL PUBLICATION CO., 16 Thomas St., New York



Chicago No. 1 Band Saw
27, 32 and 36-in.



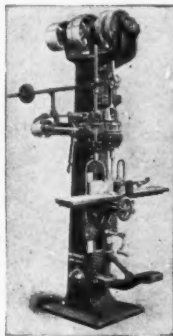
Chicago Hand Jointer
8, 12 and 16-in.



Chicago No. 35 Pony Planer



Chicago No. 7
Improved
Swing Saw



New Hermance
No. 1. Heavy
Power Mortiser

Money-Saving Machinery

THE contractor and builder who installs his own woodworking machinery can easily estimate under his competitors. Modern economic conditions demand it. Money you expend in millwork is profit for somebody else—the profit that rightfully belongs to you.

500 Machines in Stock

For a small investment contractors can obtain sufficient machines from us to make them independent. We have new machines, direct from manufacturers, and many rebuilt machines as good as new. 500 machines are constantly in stock at our warerooms.

Prices are Favorable

Our line is the most complete in the country and our prices are most favorable. All our machinery is of special construction to secure fine finished surfaces and reduce sand-papering to the minimum.

Send for Lists and Circulars

Our monthly list of rebuilt machines (free to contractors) shows just the machines you ought to have. Write to-day.

Chicago Machinery Exchange

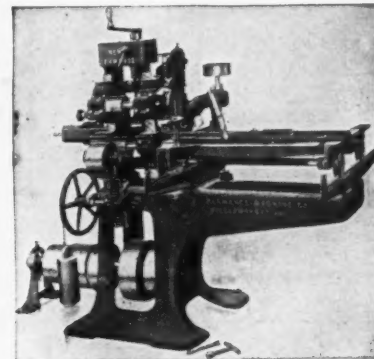
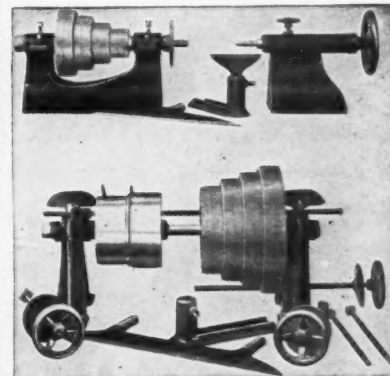
7-11 No. Canal St.,
CHICAGO



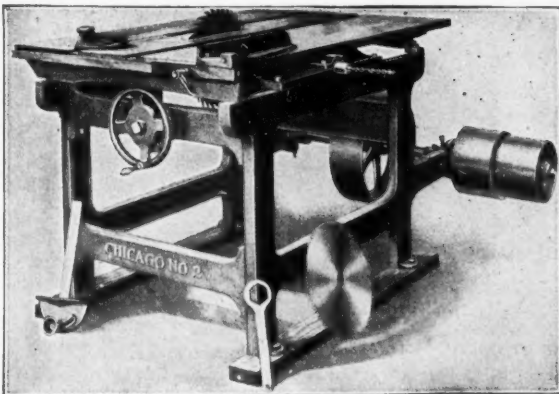
Chicago No. 10 Tilting Table
Improved Variety Saw Bench



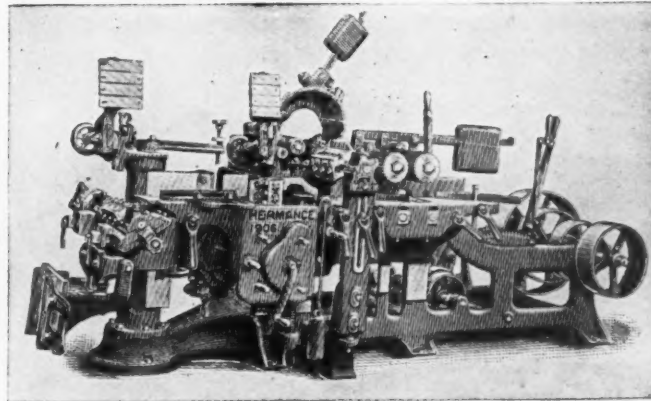
Wood Turning Lathe and Countershaft
16 and 20-in.



New Hermance No. 3 Tenoner



Chicago No. 2 Combination Saw Table
An excellent machine for ripping, cutting-off, mitering, dadoing, etc.



Hermance New 1909 "Wide-Open" Moulder
Up-to-date and a little ahead

SARGENT'S IMPROVED STEEL SQUARE

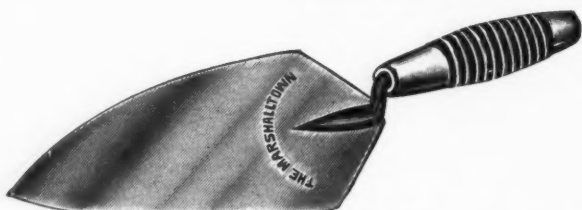
The difference between good and indifferent Carpenters' Squares lies in something more than excellence of material and workmanship, which are, of course, among other "Sargent" features—it is in the qualities that increase its all-round efficiency. That is why the practical "Sargent" Standard Steel Square is the universal favorite wherever Squares are used. Our latest model has the scales and markings which enable the carpenter to lay out all kinds of work and to calculate quantities with an ease and accuracy never before thought possible. "A practical treatise on Steel Square" is what several recipients have declared our little publication. Copy free simply by mentioning you saw this ad in the American Carpenter and Builder.

Sargent & Company
New York

1149 Leonard Street

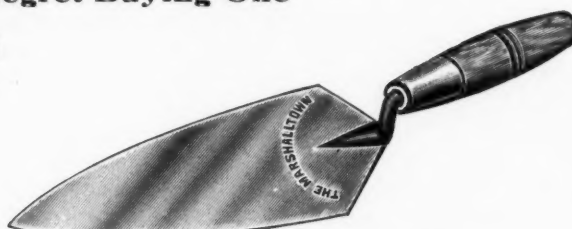
The Best Ever

You Will Never Regret Buying One



Wide Heel Brick Trowel

Made of Best Quality Crucible Trowel Steel.
Leather Handle.



Philadelphia Pattern

Best Quality Crucible Trowel Steel.
Wood Handle.

Send For
Catalogue



Send An
Order

Genuine Marshalltown Trowel

Straight Edges Always. Best Quality Spring Steel Blade. Hardened Mounting
Ten Rivets. Imitated because they are good.

Marshalltown Trowel Co.,

Marshalltown, Iowa

Use a Transit or a Level and Save Money



"Sterling" Builders' Level. Price,
\$50.00.

"Sterling" Builders' Transit. Price,
\$90.00.

Are the best made and their cost can be
saved in one season.

A broad statement but true.

Let us tell you about them and how you
can save time and do better work by their
use.

Our Circulars and Instruction Book sent
on request.

ISZARD-WARREN CO., Inc.
1122 Vine St., Philadelphia, U. S. A.

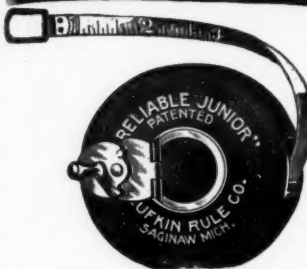
LUFKIN STEEL TAPES

and RULES

ARE INDISPENSABLE
FOR ACCURATE WORK

MADE BY
The Lufkin Rule Co.
Saginaw, Mich., U. S. A.
New York London

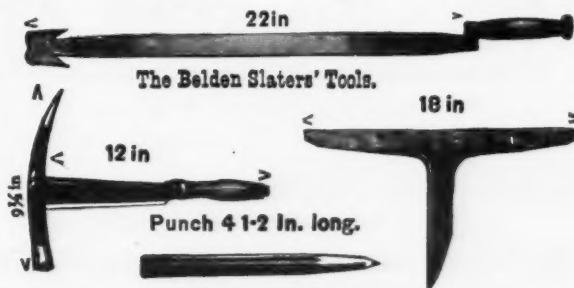
For Sale Everywhere.
Send for Catalogue.



TOOLS FOR SLATERS MANUFACTURED BY BELDEN ARE GUARANTEED

Their superiority over others is acknowledged by thousands of users. Made-to-order steel used in their manufacture adopted only after most careful experimenting gives them their value.

ONE HAMMER
ONE RIPPER
ONE STAKE
ONE PUNCH
Constitute a Set



OUR HAMMERS are perfectly balanced and are provided with

Leather Handles to prevent hand from slipping

Our Tools Bear an International Reputation

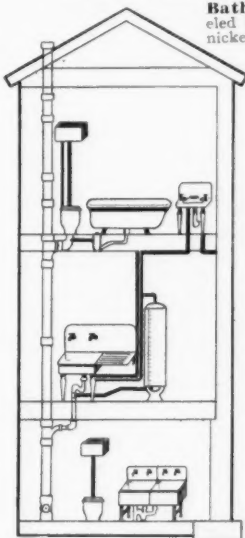
If Your Dealer Cannot Supply You, Write Us Direct

THE BELDEN MCH. CO.,

Whalley Ave. and Tryon St.
NEW HAVEN, CONN., U. S. A.

SAVE 30 to 75% ON PLUMBING AND STEAM GOODS

We sell a complete outfit consisting of all the material needed to install a water supply equipment and plumbing fixtures in any ordinary home. Price of outfit, complete, as shown in cut and described below. **\$76.00**



Bath Room Fixtures. One roll rim white enameled bath tub with complete nickel trimmings and nickel plated supply pipes. Price of this fixture alone is. **\$17.**

The Closet. Is Hardin's low tank syphon wash-down combination and nickel plated supply pipe. Price of this fixture only. **12.**

The Lavatory. Is Hardin's special enameled iron lavatory with oval basin, iron brackets and nickel plated cocks and "P" trap. Price of this fixture and supplies. **10.**

Kitchen Outfit. Consists of roll rim white enameled iron kitchen sink with roll rim back (cast in one piece), drain board, heavy iron support brackets and flange sink bibbs. Price of this fixture complete. **16.**

Range Boiler. Is our 30-gallon, galvanized iron range boiler complete with couplings and boiler stand. Price of this fixture is. **6.**

Laundry Outfit. Is Hardin's two-part stoneware Laundry Tub, with iron legs, complete laundry cocks and fittings. Price of this fixture is. **15.**

Total 76.

Pneumatic Air-Pressure Tanks

Our Pneumatic Water Supply Systems cost much less than the old style tower with tank and forms one of the advantages that is now enjoyed by residents of towns, villages and farms.

cost they are within the reach of all. We have shipped hundreds of Water Supply outfits without complaint in a single instance. Don't fail to write us if you are in the market for a Pneumatic Water Supply System. We are headquarters for these outfits and for Steam and Hot Water Systems.

In business Quarter of a Century at same location. Write for catalog.
JOHN HARDIN CO., 4549 Cottage Grove Ave., Chicago

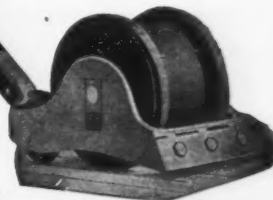
"Little Giant" Floor Scraper

Sent on Free Trial
20,000 "Little Giants" are in use

throughout this country and abroad. These were purchased because they were better; because they did more work—did it quicker, cleaner and cheaper—than any other machine made. So great is our faith in its ability to prove its worth to you that we are making the following liberal proposition.

Special Terms

A request from you brings a "Little Giant" to your door—you send no money and we pay all expenses. After you have tested it as thoroughly as you know how, and have found it satisfactory, pay for it. If you don't consider it the best floor scraper in existence, return it at our expense. That's all. Won't you give it this chance today?



CATALOG AND FURTHER DETAILS ON REQUEST

HURLEY MACHINE CO.,

155 South Jefferson Street

CHICAGO



TRADE MARK

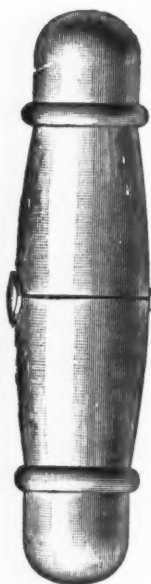
SAMSON SPOT SASH CORD



Be sure that the cord you buy has SAMSON AND THE LION on the label, and that the braid is marked with the COLORED SPOT. You may be sure you'll get the best.

WE'RE GLAD TO SEND SAMPLES AND FULL INFORMATION.

SAMSON CORDAGE WORKS, BOSTON, MASS.



Here is a Gimlet

Equal in quality and usefulness to any Brace Bit

HANDLE OF
SELECTED
COCOBOLO
WOOD

THREE SIZES ONLY
Cutting 4-32, 6-32, and 8-32 Holes

Price Postpaid **15 cents** each

H. H. MAYHEW COMPANY

SHELBURNE FALLS, MASS.



GRILLES COLUMNS AND CONSOLS

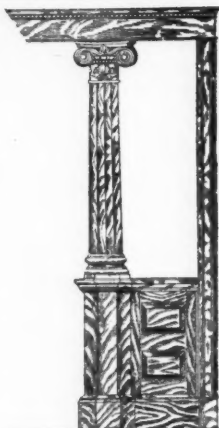
In quality and price our work is not surpassed.

You will make no mistake in writing us before ordering elsewhere.

Send for 48 Page
Catalog No. 15

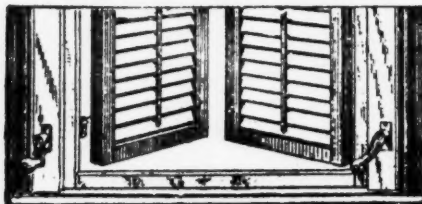
It contains many fine designs of modern Grilles, Columns and Consols.

Illustration at right shows half-section of Column design No. 552.



Northwestern Grille Works
CHRISTENSON BROS., Props. 1452 Milwaukee Ave., Chicago

MALLORY'S



Standard
Shutter
Worker

New and improved patterns and designs.

Opens and closes the blinds without raising the window. Automatically locks the blinds in any position desired. Made of gray and malleable iron. The best and most durable blind hinge. Incomparable for strength, durability and power. Can be applied to old or new houses of brick, stone or frame. Send for Illustrated Circular. If your hardware dealer does not keep them send direct to

MALLORY MANUFACTURING CO.
204 Flemington National Bank Building, FLEMINGTON, N. J.

DON'T PUT SASH WEIGHTS IN YOUR
WINDOWS—THEY ARE OUT OF DATE

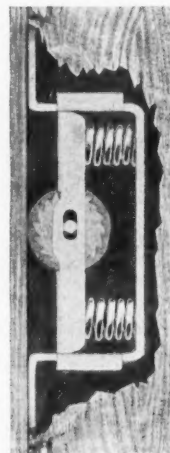
The "AUTOMATIC" SASH HOLDER

The "Automatic" Sash Holder is the new, modern, up-to-date device that dispenses with cumbersome sash weights, kinking cords or ribbons, useless weight pockets, misfit pulleys and reluctant balances, and saves all the time, labor and expense of fitting them in place.

Prevent rattling and permit the window to be moved up and down with ease. Hold it safely at any point desired.

A sample set of four sent, postpaid, for \$1.20. Ask your dealer, or write to us direct.

Automatic Sash Holder Company
277 Broadway, New York City.



CARPENTERS

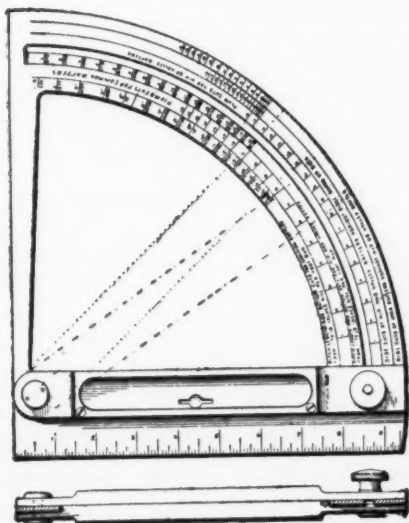
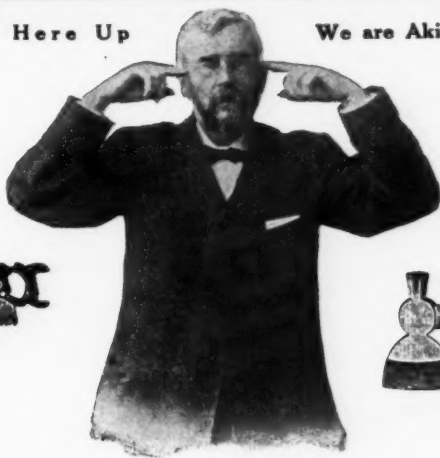
Would You Keep Abreast of the Times?

From Here Up

We are Akin to the Gods

From Here Down

We are Akin to the Ox



THE CALHOON Rafter and Polygon Bevel

Every bevel in the universe is contained in a quadrant; pass a line through it, from the center of the square to any degree or pitch, register on it the length (per foot run) and the opposite blades of the square will automatically (from that line) give bevels desired. See?

All calculations are based on 12 inches the unit of *base run* and 24 inches the unit of *pitch* or *rise*, and all hip, valley, octagon and jack, or cripple rafters on run and rise of principal or common rafter. We all know how difficult it is to read and apply the square. This tool will help you do both, or, rather, do both for you, as it is a practical tool.

The relative use of this tool in a carpenter's hands is that of an X-Ray machine to the surgeon, or of an interest book to a banker, or the computing scale or cash register to the merchant.

It is an organization of draft-board, square, tri-square, bevel-square, plumb, level and bevel-protractor into one tool.

This is a substantial TOOL 9 $\frac{1}{2}$ —10 $\frac{1}{2}$. Made of Nicked Steel.

Testimonials

"The best framing tool in existence."—O. C. Kagelmacher, Case School Applied Science, Cleveland, Ohio.

"The most complete tool I have ever seen."—M. M. Lloyd, Master Mechanic, East St. Louis & Suburban Railway Company.

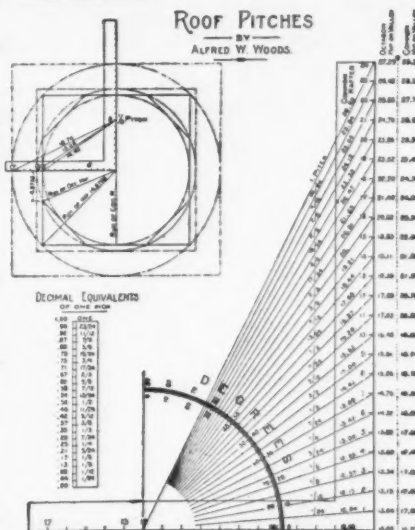
"The best mechanical device ever put on the market."—District Council, Kansas City, Mo., C. J. Huston, president, Edd. S. Abdill, secretary; District Council, Indianapolis, Ind., Chas. E. Bacon, president, Z. F. Carrigan, secretary; District Council, Cleveland, Ohio, Phil. Hyle, president; Jno. B. Melcher, secretary; District Council, St. Louis, Mo., Wm. M. Davis, secretary

Ask your Retail Hardware Dealers for them, or write to the following jobbers for one:

Standart Bros. Hardware Company	-	-	-	Detroit, Mich.
Vonnegut Hardware Company	-	-	-	Indianapolis, Ind.
The W. Bingham Hardware Company	-	-	-	Cleveland, Ohio
The McIntosh Hardware Company	-	-	-	Cleveland, Ohio
Geller Ward & Hassner Hardware Company	-	-	-	St. Louis, Mo.
Witte Hardware Company	-	-	-	St. Louis, Mo.
Tenk Hardware Company	-	-	-	Quincy, Ill.
Townaley Metal & Hardware Company	-	-	-	Kansas City, Mo.

Or Send \$3.50 to A. O. CALHOON & COMPANY Perry, Mo.

This illustration gives an idea of adjustment. The book of instruction will explain its full uses and application. Booklet of instruction with each tool.



DISSTON**SAWS**

The Largest Saw Manufacturing Plant in
the World and its Trade Mark—

EMBLEMATIC

of the Principle Upon Which the High
Reputation for Quality, Workmanship and
Utility has been built.

HENRY DISSTON & SONS, Inc. PHILADELPHIA, PA.

Henderson's Straight-Edge Level



Have you ever used a straight-edge level? If not, you should use Henderson's. For running levels, in fireproof buildings, setting frames, plumbing partitions and leveling up foundations in frame buildings, these levels are the best.

The simplicity of adjustment is the main feature of these levels; they can be removed and replaced as often as desired with only the first adjustment, and it will not throw them out of true, making it the most convenient tool of its kind in use.

Price, 75c. No Stamps

We have a proposition for you.
Drop us a postal.

Henderson & Co., 204 N. Main St., Memphis, Tenn.

JOIST HANGERS

For Wood Timbers,
Concrete Blocks,
or Iron Beams

Many Sizes in Stock

Special Shapes to Order

Steel Post Caps Wire Floor Clips

STRAPS, BOLTS, PIN ANCHORS

**BLACKSMITH WORK AND
IRON FOR CARPENTERS'
REQUIREMENTS**

Telephone Yards 408

Chas. Mulvey Mfg. Co.
35th and Ashland Ave.
CHICAGO, ILL.

Don't Get Behind the Times

SASH LOCKS



Bronze Plated, per Doz. . \$.55
Antique Copper, "55

Mr. Contractor and Material Man:

We want you to have
our Builders' Hard-
ware Catalogue and
Net Price List.

DON'T WAIT

Send us a postal by
return mail.

REHM HARDWARE CO.
354 Blue Island Ave., **CHICAGO**

Smooth, tough "leads" are the result of skilful and careful grinding, working and firing. It is this care and skill that make Dixon's Carpenter Pencils standard. Send 16c for generous sample lot 183 J.

JOSEPH DIXON CRUCIBLE CO.,
JERSEY CITY, N. J.

A Good Carpenter

can work with poor tools, but to do the best work in the shortest time and with the least effort he uses

"Yankee" Tools

They are as essential to a first-class outfit as a hammer and saw. They save much time and needless effort. Nothing adds to a man's contentment and peace of mind like "YANKEE" Tools. They remove the drudgery and make work a pleasure. You are doubtless using some, but have you seen the complete line? There are 25 styles, each a Labor Saver.

Get Our "YANKEE" TOOL BOOK

Full of new ideas in Time and Labor saving tools—the embodiment of "Yankee" ingenuity and invention, illustrated with photographic reproductions of the tools in use. It's worth having. FREE to mechanics who mention the "American Carpenter and Builder." A postal brings it.

All Hardware Dealers Sell "YANKEE" Tools

North Bros. Mfg. Co. Philadelphia, Pa.



PHOENIX INSIDE SLIDING BLINDS

WILKES BARRE, PA.

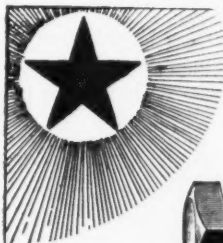
The Phoenix Sliding Blind Co.

Enclosed find my check for blinds. I am pleased with them and sorry I did not have them put throughout the whole house.
O. W. MILLER.

**Comfort!
Economy!
Convenience!**

The latest improved springs and corrugated steel rods put the "PHOENIX" far in lead of less improved styles. Write for Catalogue "C" and free samples, showing construction.

PHOENIX SLIDING BLIND CO.
BRIDGE & CANAL STS. PHOENIX, N. Y.



EXPANSION BOLTS



FOR Quick, Labor-Saving Fastenings that HOLD in Brick, Stone and Masonry. Drill hole, place STAR SHIELD within, then put lag screw thro' material to be attached and into STAR SHIELDS and fasten tight. A positive inside lateral expansion insures a fastening PERMANENTLY DEPENDABLE. Catalog, Samples and Prices upon request.

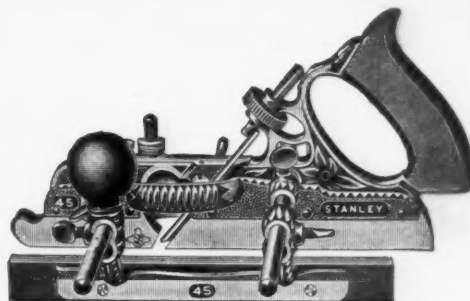
STAR EXPANSION BOLT CO.

Cor. Cedar and Washington Sts.

New York City

STANLEY Adjustable

Beading, Rabbet and Matching Plane



This Plane embraces (1) Beading and Center Beading Plane; (2) Rabbet and Filletster; (3) Dado; (4) Plow; (5) Matching Plane; (6) Sash Plane; and (7) a Superior Slitting Plane

No. 45 Nickel-plated, with Twenty Tools, Bits, etc., each.....\$9.00

For full description, write for Catalogue No. 34

SOLD BY ALL HARDWARE DEALERS

Stanley Rule & Level Co.
New Britain, Conn., U. S. A.



"A Bit Of Utility"

Guided by its circular rim—instead of its centre—the Forstner Labor-Saving Auger Bit will bore any arc of a circle, and can be guided in any direction.

Doesn't matter how hard the wood is, no consequence whether it is full of knots, or the grain awkward to negotiate. The Forstner Bit works with equal smoothness under any condition and leaves a true polished surface on every job.

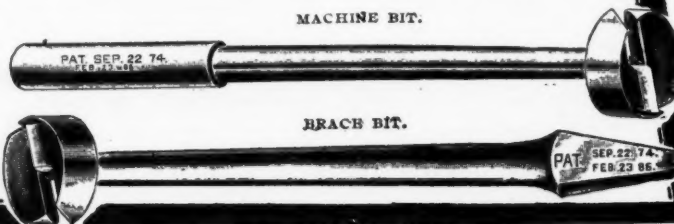
Unequaled for Delicate Work

Supersedes chisels, gauges, scroll-saws, or lath tools combined, for all kinds of delicate work. Cabinet and pattern makers and carpenters are enthusiastic because they do more work than other bits and cost no more.

We can offer something special in the matter of price on sets packed in a sensible box. Send today for particulars and catalog.

The Progressive Mfg. Co.

Torrington, Conn.



"Last a Lifetime and give Satisfaction to the End"



The Celebrated Barton Planes and Edge Tools for carpenters and all other woodworkers are unequaled by any other make for keen hard, smooth cutting edges. If your hardware dealer does not handle

The Celebrated Barton Tools, send direct for Catalog. Be sure and specify "CARPENTER'S CATALOG"

MACK & CO., 20 Brown's Race, Rochester, N. Y.

MILLER'S TOOLS

Miller's Lock Mortiser

This tool is a profitable investment for any builder.

Cuts an opening for a lock in three minutes.

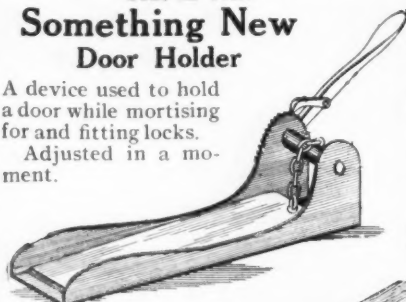
Its merits have been demonstrated in all kinds of hard or soft woods. It will save its cost in a day.

Sent on Trial

Something New Door Holder

A device used to hold a door while mortising for and fitting locks.

Adjusted in a moment.



Does not mar the door or floor. Can be used for other purposes.

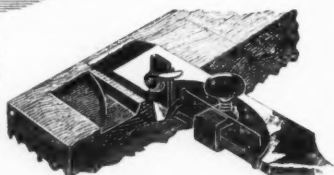
A tool that every carpenter should have. Send for one.

Price \$1.25

We have sold thousands of these handy little attachments, and our files are full of letters of praise and commendation.

It cuts the seats for butt hinges in doors, jambs and similar work. Does it neatly and accurately, and in one-third the time; adjusted in a moment. Every mechanic that wishes to be up to date should get one. Price 75 cents, including our rule gauge. If your dealer does not have them send us money order for the amount and we will send postpaid.

Western Office
Riverside, Cal. **A. W. Miller Mfg. Co.** Main Office
Cincinnati, O.



Butt Mortiser



You Will Sell More Window-Screens If You Hang Them With

GOSSETT HINGES

No experiment. Eight years of growing sales prove them the best. Find out for yourself.

Write for Free Samples Today

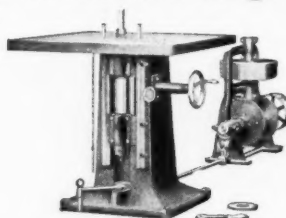
F. D. KEES MFG. CO.

Box 523

BEATRICE - NEBRASKA

EVERY DESIRABLE FEATURE IS FOUND IN Crescent Wood Working Machinery

Band Saws
Saw Tables
Jointers
Shapers
Borer



Swing Saw
Disk Grinder
Planers
Planer & Matcher
Band Saw Blades

Send for Catalog—It's free

THE CRESCENT MACHINE CO.

224 Main St.

LEETONIA, OHIO, U.S.A.



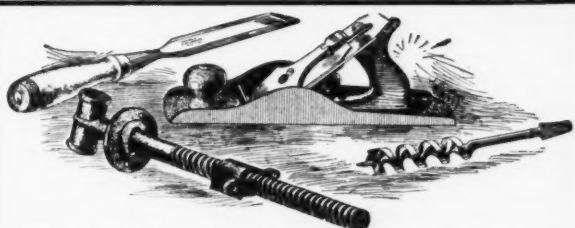
\$4.50 Charges
Prepaid

EAST of the MISSISSIPPI RIVER

Dowelling Machine No. 114

This is the best machine for the quick and accurate boring of dowelling holes which has ever been devised. It has a graduated steel strip running each way from the center and another at the back showing the height. With the use of these and the block, practically perfect placing of dowel holes may be obtained. It is provided with holes for $\frac{1}{4}$, $\frac{5}{16}$, $\frac{3}{8}$, $\frac{7}{8}$, and $\frac{1}{2}$ inch. The whole machine is thoroughly made and attractively finished. It will be found of inestimable value to anyone having much work of this class to do.

Goodell-Pratt Company
Greenfield, Mass., U. S. A.



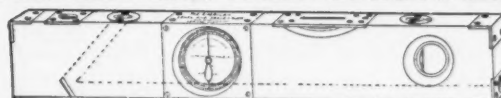
"OHIO" TOOLS are the product of nearly a century of active experience and progress in the edge tool business. Carefully made from the best materials, treated by the most improved methods, they are Economical Tools for the User.



Every tool covered by a broad guarantee.
Write for Catalogue No. A.

Ohio Tool Company, Columbus, Ohio

THE AMERICAN Combined Level and Grade Finder



All Progressive and Up-to-date Mechanics as well as Manufacturers having use of a Level, are getting one

An instrument with which at one glance you can get the true slant on any line or grade either in degrees, inches or percentage, or all at the same time, and will at once give the exact distance need to plum up to a true level.

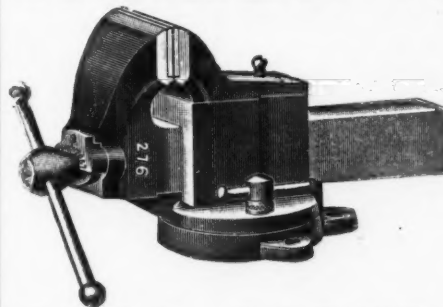
A Civil Engineer that you may have with you at all times.

The most practical, durable and convenient instrument of the day. The longitudinal recess which is shown in cut is well worth the low price of the instrument.

Write at once for large list of testimonials from all over the United States, and special introductory price given only to first applicants with privilege of taking agency.

Address Edward Helb, P. O. Box No. 55, Railroad, Pa.

PARKER VISES



MADE
ESPECIALLY
FOR WOOD
WORKERS.

FOR SALE BY
DEALERS

SEND FOR
CATALOG

CHAS. PARKER CO.
MERIDEN, CONN.

SELF-SETTING PLANE

See December number of this paper pages 261, 320 and 322 for facts. No plane like it. Inexperienced man can use it. A child can set it. It sets itself.

THE BEST ALWAYS THE CHEAPEST.

None Cheap but the Best.

All Want the Best.

Sent on 30 Days' Trial as per Circular, if Dealers do not keep it

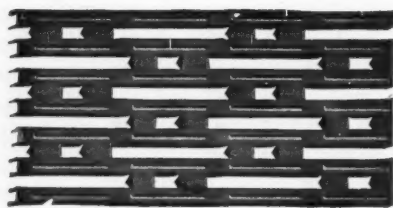


SECTIONAL VIEW—showing ADJUSTABLE IRON THROAT.

him to use the old style plane. He deserves the best. Get it for him if you don't want it for yourself, then return it if you want to. Circulars and a carpenter pencil free on receipt of addresses of ten or more plane users. Send for a plane now, and return it if you don't like it. Circulars and a carpenter pencil free on receipt of addresses of ten or more plane users, and the name of this paper.

GAGE TOOL CO., Vineland, N. J.

ECONOMY FROM START TO FINISH



Coming right down to the economy question Clincher Lath has got everything beaten.

As a practical man you can understand the principle by the illustration. Notice the level plastering surface—the construction that's different.

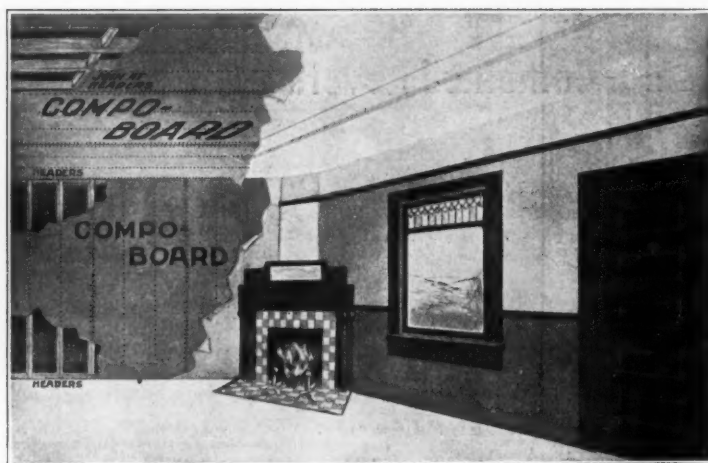
Sagging Is Impossible

Sagging between the studding is rendered absolutely impossible if Clincher Lath is used. Read what progressive carpenters have to say about it.

Easier to handle and easier to erect than any other lath on the market. Prove this by sending to Department R. C. for samples. Free to anybody interested.

The American Rolling Mill Co.

**MIDDLETON
OHIO**



COMPO-BOARD

A substitute for Lath and Plaster
Can be put on by any Carpenter.
It is Warmer, more Durable,
Quicker and more Easily Applied.
Manufactured all 4 ft. wide, 8, 9, 10,
11, 12, 13, 14, 15, 16, 17 and 18 ft. long.

For Sample, Price and
full Description, Write

Northwestern Compo-Board Co.
MINNEAPOLIS :: :: MINN.

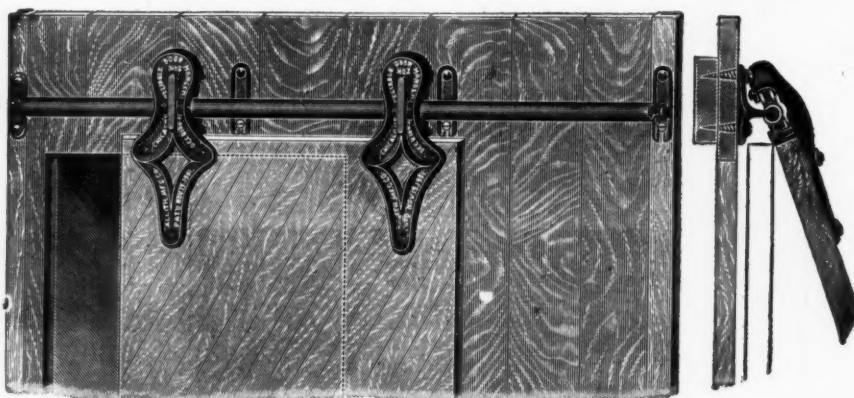
RELIABLE ROUND TRACK DOOR HANGERS

Impossible to Derail
Easy Running, Great Strength

FOR

BARN, WAREHOUSE and FIRE DOORS
Send for Catalog "A"

ALLITH MANUFACTURING CO.
CHICAGO, ILL.



WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

The "UNIVERSAL" ADJUSTABLE HANGER

can be used anywhere. It forms a perfect, practicable lock; sash hung with it cannot be opened or removed from the outside; it cannot be blown open by storms; makes practicable the only substitute for the half-sash sliding screen: is sold in sets, half sets, or in any other way the trade demands; indestructible; will wear out a dozen screens. Ask your hardware dealer or write for free sample and catalog.

THE ADJUSTABLE HANGER
CO.
415 Huron St., Toledo, Ohio,
U. S. A.



Don't Ask the Dealer for Sash Cord. Ask for

"SILVER LAKE"

and see that he gives it to you. It is impossible to



substitute, as our name is stamped in red on the cord. Silver Lake Sash Cord is the Original Solid Braided Cotton Sash Cord and has been the standard since 1868. No other is just as good.

MONITOR SASH LOCKS



(PATENTED)

NEVER BREAK

BECAUSE THEY ARE MADE OF VERY HEAVY GAUGE
METAL AND PERFECTLY CONSTRUCTED

If the upper sash drops, the Monitor "Never Break" Sash Lock will pick it up from a lower point than any other; adjust the sashes perfectly, prevent all vibration, and lock securely, so it can not be opened from the outside.

MADE IN TWO SIZES AND ALL FINISHES BY

The Champion Safety Lock Co.
Geneva, Ohio

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All-Steel Sash Pulleys

Are sold DIRECT to Builders, Contractors and Mills at prices under the common ordinary goods.

If you make ten or ten thousand window frames, we can save you money and give you a superior sash pulley. We are the largest sash pulley makers in the world. We ship direct, or through dealers and jobbers everywhere.

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Direct from the makers to you. Inquiries welcome.

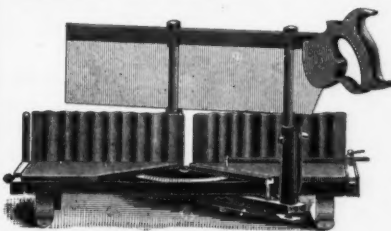


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HARDWARE CO.**

34 Pearl St., Grand Rapids, Mich.

GOODELL MITRE BOX

Made of STEEL - Cannot Break



First in Quality
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Improvements
Automatic Stops
for
holding up saw.
Corrugated Backs.
Graduated.
Gauge for dupli-
cate cuts and many
other features.
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Chicago's Oldest, Largest and Most Reliable
Hardware House

STEBBINS HARDWARE CO.

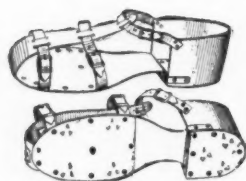
74 Van Buren Street
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Dependable Merchandise at Lowest Prices

Shingling Made Safe and Easy

Stowe's Shingling Kit

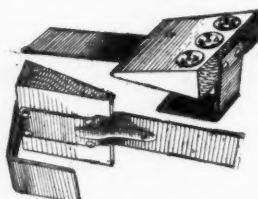
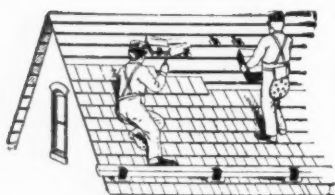
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SANDALS

All Builders doing Roofing shouldn't be without a pair of these Sandals. They

**Eliminate Danger
Protect Shoes
Pay for Themselves**

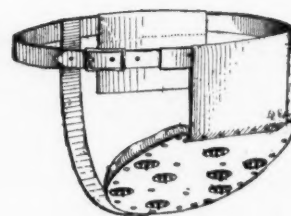


SHINGLING BRACKETS

Easy to adjust in place
Instantly removed
Does not injure shingle
Holds 2x4 securely
No nail holes in roof

Send us the Name of your Leading
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ROOF SADDLE

Is arranged so the operator may shift from one hip to the other without adjusting, and not only insures a safe and comfortable seat, but saves clothing.

Has Nail Pocket

Prices for any part or for complete kit quoted on application.

Coldwater Specialty Mfg. Co.

Office Removed to 56 Fifth Avenue, CHICAGO. Room 427.

PLATE GLASS

Bath Room Fixtures

FOR RESIDENCES, HOTELS, OFFICE AND APARTMENT BUILDINGS

Absolutely sanitary, require no cleaning, never wear out or show the effects of use. Not affected by hot or cold water. The modern 20th century toilet and lavatory fittings.

PLATE GLASS TOWEL BAR



Price \$1.50

No. 141 24 inches, adjustable. Also made in 30, 36, 42 and 48 inch lengths at slightly higher prices.

Round glass towel bars, \$2.00

Adjustable glass towel shelves, \$3.50, \$4.00, \$6.00

We also sell plate glass with polished edges for table tops, any size, and glass push plates for use in fine residences and apartments, manufacture and re-silver mirrors, etc.

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Manufacturers and Jobbers of Plate Glass Specialties
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FLY SCREENS

Our work is far superior to the usual output of local mills and has a style and finish not obtainable from those who do not make a specialty of fine screens.

Our screens have waterproof coped joints and the frames are weather proofed before the finishing coats are applied.

Best grades of Wire Cloth, enameled, galvanized, genuine bronze, fastened by the most approved methods.

Intending purchasers may have free, by mail, samples of woods, finishes, wire cloth, and a copy of catalogue and price list. Agencies in nearly all large cities. Agents wanted in smaller cities.

Special terms to Contractors and Builders.

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25 Year's Experience

3 1/2 Acres of Floors

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If you need anything in my line and wish to

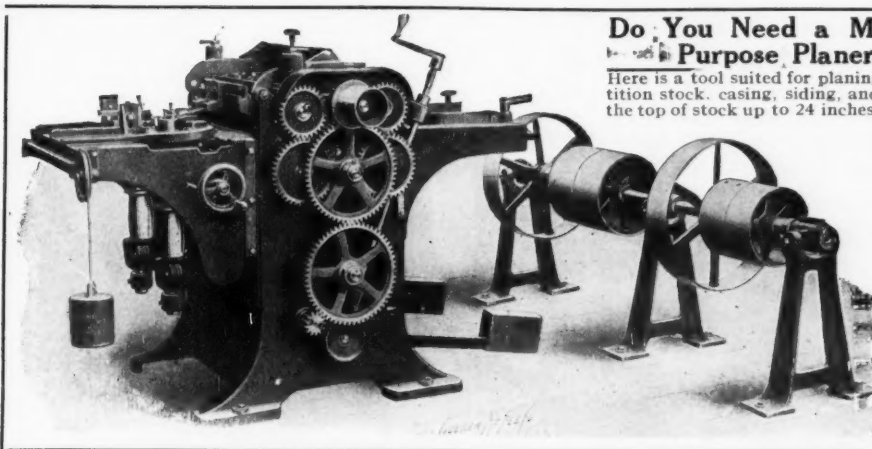
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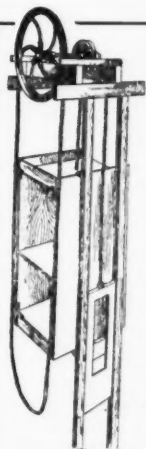
Do You Need a Medium Size, Modern, General Purpose Planer, Matcher and Moulder?

Here is a tool suited for planing, making flooring, ceiling, wainscoting, partition stock, casing, siding, and a multitude of other mouldings. It planes the top of stock up to 24 inches wide and 7 inches thick; planes top and two edges of stock up to 12 inches wide and 2 inches thick. Heads to joint up to 4 inches thick furnished on order.

STRONG POINTS: Heavy, strong frame; rigid table; double-belted, four sided, fifty point carbon forged cylinder, with bearings of large diameter and good length; expansive gearing; solid bored feed roll boxes; forged steel arms on chip breaker hood; horizontal adjustment to chip breaker hood and pressure bar; extra clearance around matcher heads. You can work top and two underside bevels on such as crown and sprung moulds in one operation, something not possible on any other machine of the size.

If you are particular, want a good tool, one well designed and constructed handy and convenient, it will pay you to investigate this machine. Write for circular No. 17.

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This DUMB WAITER

complete ready to erect for - **\$18.50**

**SELF RETAINING MACHINE
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SECTIONAL WEIGHT

ROPE, GUIDES, HARDWARE,

knocked down and shipped with the only complete directions for erecting ever issued.

SEND FOR SPECIAL PAMPHLET

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174 Washington Av., BROOKLYN, N. Y.

Modern Cement Sidewalk Construction

A PRACTICAL TREATISE FOR THE WORKMAN

By

Charles Palliser

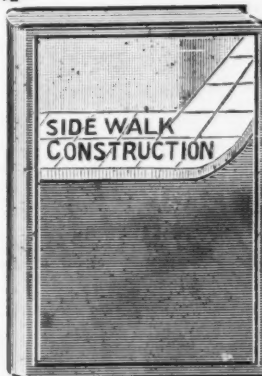
64 Pages (5 1/2 x 7 inches)

Fully Illustrated

Handsomely bound in cloth

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Your money back if you are not pleased. : : : : : : :



THE construction of cement sidewalks, curbs and gutters is thoroughly explained in this book full directions being given regarding the selection and testing of the cement, sand, stone, gravel, etc.; the special tools used; the laying, finishing, seasoning, coloring, etc.; together with advice on dealing with customers, and data regarding the actual cost of several jobs, with the complete specifications of each.

The methods of work have been tried over and over again by the author in his many years of experience, and always with success; and anyone following these directions will be able to lay a cement sidewalk that will last for years without rearing up, cracking or crumbling.

The simplest language has been used throughout the book, all technical terms, etc., being fully explained. Contains many valuable pointers for the experienced cement-mason as well as the beginner.

INDUSTRIAL PUBLICATION CO.

16 Thomas Street

New York

SAFETY HOOK



enables the bracket to be used on any roof of positively any angle. The greatest preventive against danger ever devised in this particular line. Timber cannot fall off.

The fifty thousand in use every day prove there must be superiority somewhere.

It is the only roof bracket which can be used both for shingling and sheathing and works equally as well with either. This alone is a commendable feature.

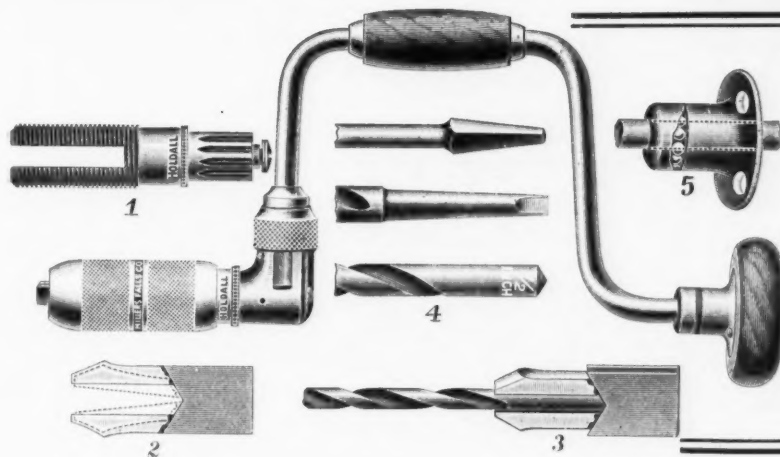
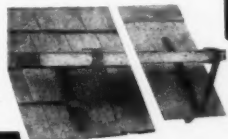
Takes in either 2x4 inch or 2x6 inch staging board, has two separate bearings on the roof and any increases of pressure from above

Increases its stability.
Generally finished in Black Japan.

Your dealer probably has got them—if not, let us hear from you.

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Cedar Falls, Ia.



The HOLDALL BRACE

IT'S NEW and has jaws which adjust themselves to the shape of the shank. They grasp and hold securely straight, tapered, round and square shanks. The sleeve is correct in shape for comfort to the hand and to obtain the firmest grip. Every part of the Brace is made with greatest care. We say without hesitation that the Holdall is the most perfect tool of its kind yet offered. Made in usual sizes, with 8, 10, 12 and 14 inch sweep. Ask for circular giving further description.

Millers Falls Company
28 Warren Street, NEW YORK

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GEO. H. BISHOP & CO., Lawrenceburg, Indiana, U.S.A.

Makers of

Fine Hand Made Hand Saws

The Purest of Quality Our
"GREYHOUND" Hand Saw

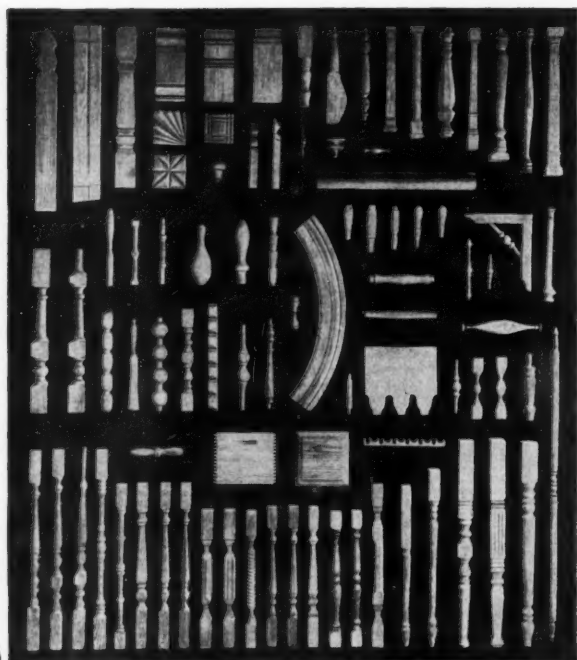
IN introducing our "GREYHOUND" brand of Saws to the trade, we have departed from our usual custom in naming instead or numbering the saw. This saw will be known as our "GREYHOUND" and will be the only Bishop brand of saw known by name.

We have had a Chemist experimenting for years to originate a purity of steel with a fine grain and tough body that would stand up under such a fearless warranty as we place on our "GREYHOUND" brand of saws. We now have it. We know its worth as well as its value. As workers of steel we understand it. We had to name it and we have christened it Bishop's Refined "GREYHOUND" Steel, associating our trade mark with its name. We have in this "GREYHOUND" Saw blade a purity of steel that is tough, tempers accurately and even—together with the special way it is made—enables us to guarantee that this "GREYHOUND" brand of Saws will cut faster and run easier in all kinds of wood, hold its sharpness and set longer than any other makes of good Saws in the world. We Refund the Money if 30 days' trial does not prove our guarantee. Our pride is quality with an honest opportunity for the purchaser to judge. Each Saw is tagged with our warranty on it. No expense has been spared to make this Saw the most perfect in the world. We invite correspondence with anyone who has our "GREYHOUND" brand of saws in use.

Made in both straight and skew back. Packed One in a Box.

In workmanship this saw possesses all the skilled mechanical features known to the art of saw making. The hang of the blade has been carefully studied and adjusted, to suit the fancy of the most critical.

If this saw cannot be found in the Hardware Store and they will not order it for you, write to us. Price for 26 in. saw, \$3.00 delivered. We make anything in Carpenters' Saws.



MADE ON OUR Universal Turning and Variety Machine

It is the wide range of its work that makes this machine, wherever sold, one of the busiest and most profitable in the shop. It will quickly pay for itself in making balusters and other turnings at a big saving in cost, and as a general handy machine its variety feature gives it a value that only use can thoroughly demonstrate.

May we show you, without obligation on your part? Then we have a proposition to submit—when you are ready.

C. MATTISON MACHINE WORKS,
879 FIFTH STREET, BELOIT, WIS.

THE TRUE MITER BOX

Cut shows saw raised

about two inches above bed and is held there until ready for use. When ready to use the saw, all that is necessary is to touch the lever or to take hold of the handle and the saw will drop down to the stock.

This miter box is so constructed that any piece broken or stolen can easily be replaced
NICHOLLS MFG. CO., OTTUMWA, IOWA



Ball-Bearing Spring Hinges.

THAT ARE PRACTICAL

The Shelby Chief Double Acting Floor Hinge has solved the problem of easily get-at-able, hinges, impervious to water and dampness.

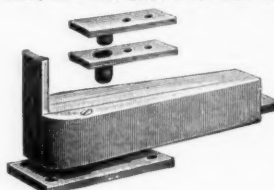
Doesn't go in the floor but rests on top. Easily applied, and very economical.

The labor saving feature is being appreciated by carpenters and builders everywhere.

Send for our free catalog which contains some sensible hinge talk, and also shows our full line of Double Acting Ball-Bearing Spring Butts and Builders Hardware. Free on request.

Write Today.

The Shelby Spring Hinge Co.,
Shelby, Ohio



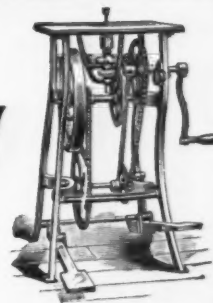


"Victor" Scroll Saw "Diamond" Mortiser

FOOT, HAND AND POWER Wood-Working Machinery

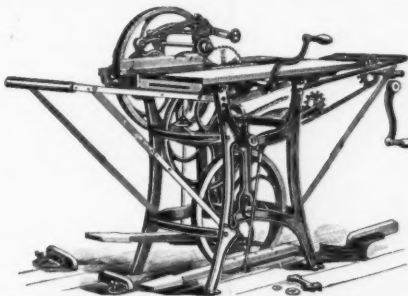
For Carpenters, Builders, Cabinet-Makers, and
Other Wood-Workers

BUILT FOR HARD WORK, ACCURATE WORK AND LONG SERVICE



"Rex" Moulder

ONE MAN with one of these machines will do the work of four to six men using hand tools; will do it easier, will do it better.



"Union" Combination Self-Feed-Rip and Cross-Cut Saw

WE GUARANTEE each machine to be thoroughly practical and accurate. Machines sent on trial, and if not found entirely satisfactory, may be returned at our expense.

(96).



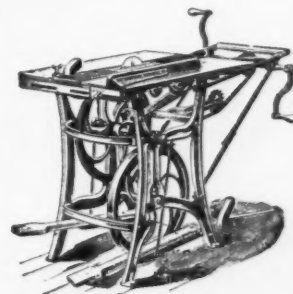
No. 8 "Union" Power Saw

Enterprising mechanics are quick to see the superior merits of our machines. It will pay you to investigate these advantages.

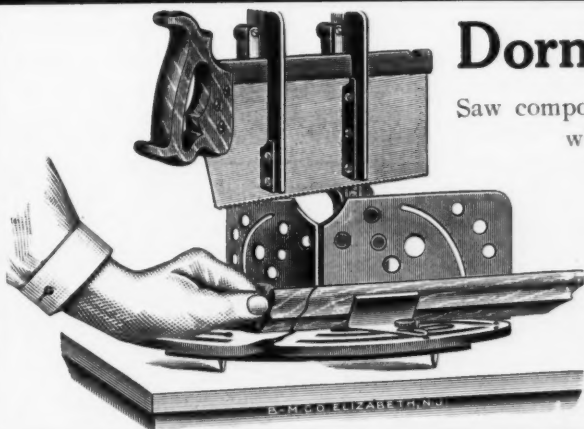
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The Seneca Falls Manufacturing Co.

218 Water Street, Seneca Falls, N. Y., U. S. A.



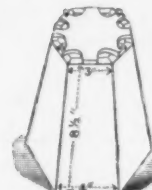
No. 6 "Union" Combination Saw



Dorn's Revolving Mitre Box

Saw compound as well as plain mitres any width with a back saw 4 inches wide.

SEND FOR BOOKLET
IT TELLS THE STORY



Compound Mitre

MANUFACTURED BY

Braunsdorf-Mueller Company

1093 E. Grand Street, ELIZABETH, N. J.

PUMPS, DOOR-HANGERS, STORE LADDERS

The Pump That Pumps SPRAY PUMPS Double-acting, Lift, Tank and Spray

MYERS PUMPS Store Ladders, Etc.

Hay Tools of all kinds Write for circulars and prices.

Myers Stayon Flexible Door Hangers with steel roller bearings, easy to push and to pull, cannot be thrown off the track — hence its name — "Stayon." Write for descriptive circular and prices. Exclusive agency given to right party who will buy in quantity.

P. E. MYERS & BRO.
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Noiseless Cushion Tire

LADDERS

DUMB WAITERS AND HAND ELEVATORS

OF THE MOST IMPROVED AUTOMATIC CONSTRUCTION

INVALID LIFTS TRUNK, CARRIAGE, SIDEWALK AND FREIGHT ELEVATORS

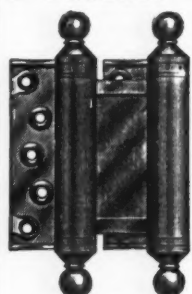
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POUGHKEEPSIE, N. Y.
AND
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SEE SWEET'S INDEX

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CHICAGO SPRING BUTTS

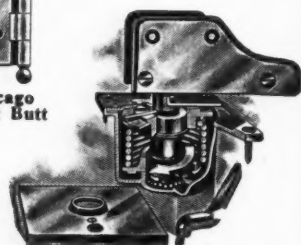
A PRODUCT OF RECOGNIZED SUPERIORITY



Triple-End Spring Butt



Chicago Spring Butt



Chicago Ball-Bearing Floor Hinge

Chicago Spring Butt Company

CHICAGO

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NEW YORK

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to know us; to get our catalogs and see what we have to offer in goods and prices. Get a catalog and look it over. It will put you under no obligation and you will not be bothered by a lot of advertising matter that is no good to you

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Number 377

DUMB WAITERS AND HAND ELEVATORS—Giving details required to enable us to quote you intelligently. Sent free.

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CONTRACTORS' TOOLS—Showing tools for the bricklayer, cement contractor, mason contractor sewer builder, lather plasterer, slater, stonecutter, stone mason. Is the most complete work for contractors ever issued.

ORR & LOCKETT HARDWARE CO.

Estab. 1872

CHICAGO



**STOP!
LOOK!
LISTEN!**

"Pullman" Spring Sash Balances

ASK US ABOUT THEM

PULLMAN MFG. COMPANY

(Center Park)

ROCHESTER, N. Y., U. S. A.

**FOR PEACE OF MIND,
GOOD WORK, AND A
WELL SET SAW, USE**

MORRILL'S NO. 11 SAWSET.

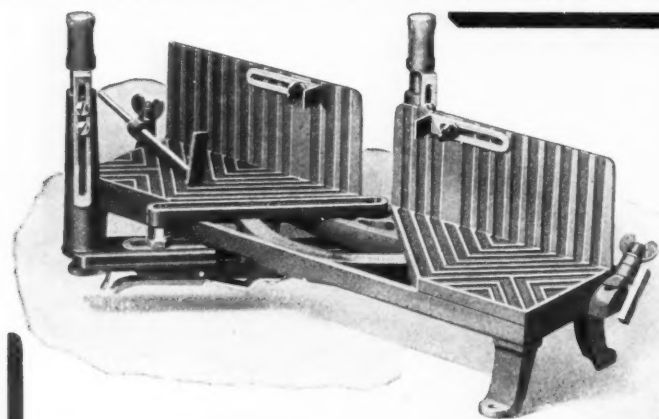


IT WILL
HELP YOU
TO DO
ALL
THREE

CHAS. MORRILL

283 BROADWAY

NEW YORK



"The Nickel-plated Marsh-Ayer"

The patent lock for fastening the swinging lever at any angle is only one of the many clever devices found on this box. Get your dealer to order one so that you may see the others.

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ROCKFORD, ILLINOIS

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**World's Greatest
Building Paper**

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The
**World's Greatest
Building Paper**

American Carpenter and Builder

Entered as second-class matter July 1, 1905, at the postoffice at Chicago, Ill.
under the Act of Congress of March 3, 1879.

Published monthly by

American Carpenter and Builder Company
185 JACKSON BOULEVARD, CHICAGO.

VOL. VI MARCH, 1909 No. 6

The AMERICAN CARPENTER AND BUILDER is issued promptly on the first of each month. It aims to furnish the latest and the most practical and authoritative information on all matters relating to the carpentry and building trades.

Short practical letters and articles on subjects pertaining to the carpentry and building trades are requested.

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TOO many men wake up after the procession has passed.

NO MAN ever acquired a lasting brand of popularity by knocking.

IT IS sad but true that the man who can turn his hand to anything and the man who knows it all, accomplish but little.

IT IS a good plan to talk quality. It is a better one to deliver it.

Outlook for Business

REPORTS gathered by the AMERICAN CARPENTER AND BUILDER from all sections of the country, north, east, south and west, indicate that the present building season will be one of great activity. Beginning with last fall there has been a steady improvement; each of the winter months has been able to show a substantial gain, in the value of contracts begun, over that for corresponding periods the year before. And this percentage of gain has become larger and larger as the season has progressed.

Cold weather operations in the building lines are confined pretty generally to large work in the cities. Comparing the reports from forty representative cities for January with those of January, 1908, we find a net gain of 104 per cent. Chicago leads the advance, in the list of the big cities, with a gain of 220 per cent. During the month permits were issued there for the erection of 669 new buildings at an estimated cost of \$8,227,700.

Such reports from the large cities at this time of year, form a sound basis for prediction as to the building season just opening in the country at large. There is a growing spirit in the air of confident enterprise. The people have money to spend. Capital is looking for investment at safe rates. Altogether it would be hard to picture a prospect more favorable to a very active building season.

Last year was characterized by the very large proportion of small and cheap buildings put up. A great improvement now is noted in this regard. The architects report their clients pretty generally interested—in a way that means business—in substantial business blocks, and in residences of good size and finish. The superior merits of improved real estate as an investment seem to be well understood. Plans are being made for a large amount of property to be improved for renting purposes. Also the suburban "home building" companies plan to build up many sections with their "easy-payment" houses.

WHEN it comes to giving advice lazy men usually work overtime.



When They Begin to Save

JOHAN M. CARRERE, at a recent meeting of architects in New York City, made the following pertinent comment:

"Amazing, the age of an architect's patrons! The average man, in fact, is 35 before he begins to save seriously; his pile isn't made till he is 50; he begins to build himself a house in his old age, and his funeral takes place about the time the painters are called in."



Accepting the Lowest Bid

SECRETARY GARFIELD, of the United States Interior Department, at a recent conference of supervising engineers, made some observations upon the matter of accepting the lowest bid, his views being emphatically against it where there is doubt. Inasmuch as there is a sort of fetish in favor of the lowest bid under any and all circumstances, this view from a high government official is interesting. His statement is as follows:

"When the bids come in I want the local men never to hesitate to throw out unduly low bids. There is nothing more distressing to the department than to deal with a failing contractor. The mere fact that it is the lowest bid gives the presumption that it ought to be accepted, but if any engineer knows that a contractor has made a mistake or is not qualified or is not responsible or is negligent in the method of performing his work, that should be one of the prime conditions to be considered in making a recommendation for or against giving the contract to that contractor. I always want the word "responsibility" to be given the fullest meaning that the law will allow it. It must be the responsible bidder in every case. Much of our difficulty has been in dealing with men who were not responsible."



Overhaul Your Outfits

NOW is the time for contractors to get their machinery and other apparatus in shape for the spring building. Put a man on the job and get your outfit in good shape for immediate use. Do not wait until you land a contract, as some do. We have known a few contractors who own expensive outfits and who are content to dump them into a yard at the end of the building season and leave them exposed to the weather. In the spring they will wait until they get a contract and then hurry to "dig" their apparatus out, using some time that can never be recovered. If you are in business, stay with it; be up-to-date and keep your outfit ready. Don't let your hoisting machinery or derricks rust, in order to save a few cents. And, above all, hang out your sign so that everyone

can see it. Don't be ashamed of your name or your business. Let people know you are always ready. It is not always the man with the lowest figure that gets the job. You know that is true. Reputation and name count, too.



Changes and Extras

THE man who is set in his ways and abominates making alterations and doing extras about a job is certainly in for trouble. Quite frequently he finds his work unsatisfactory both to himself and to the man for whom he is building. On the other hand, a man who enters into these things with the right spirit often derives actual advantage from changes and extras, and at the same time leaves a well satisfied customer.

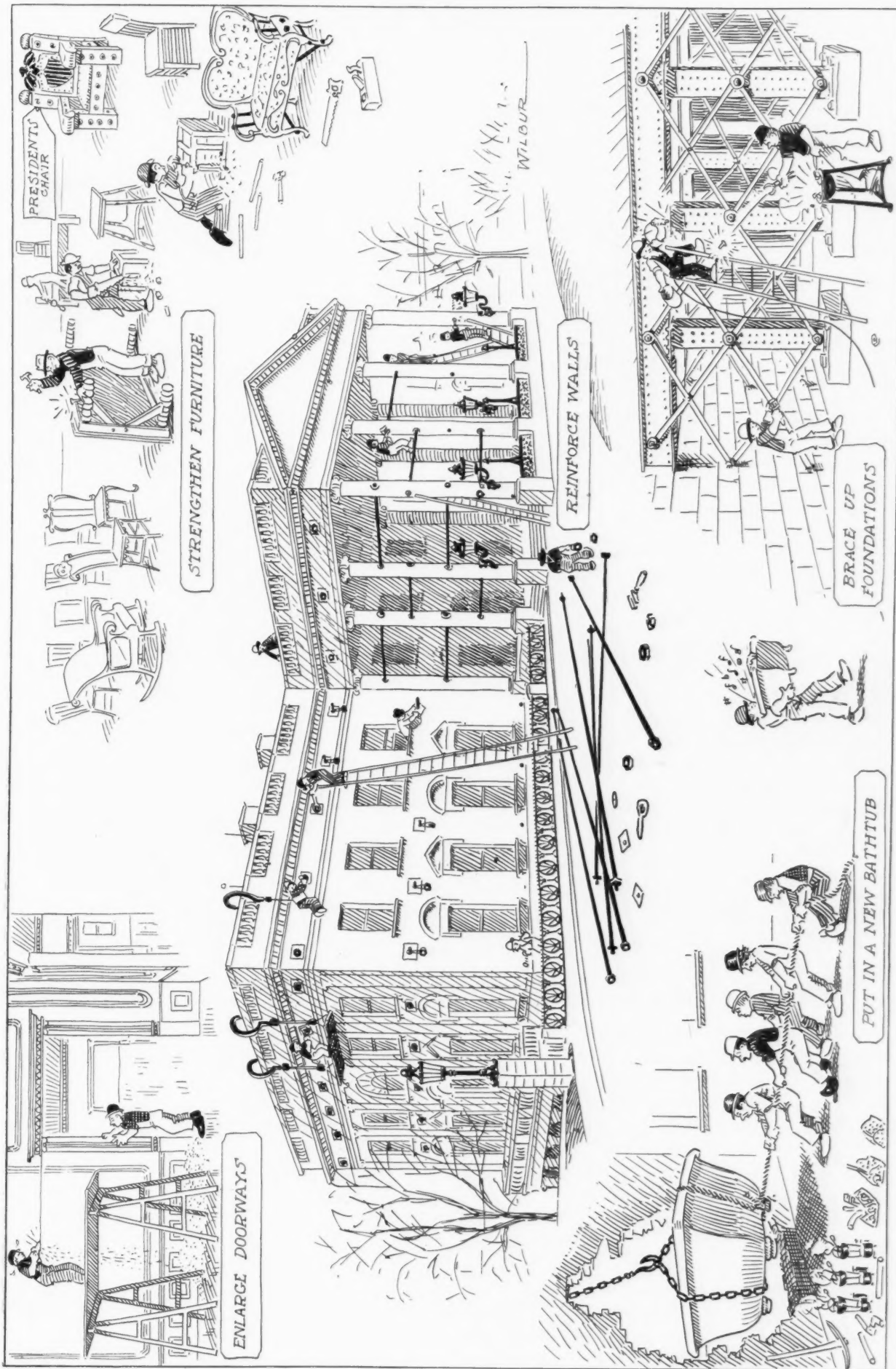
There are, of course, some people who have building done who are never settled in their own minds as to just what they want, but change from day to day in a perfectly senseless way. These, however, are in the minority; and it does seem that if a man having building done, changes his mind and wants something different from the original plan, he has a perfect right to ask that the change be made. Of course if the change is one not wise from an architectural or material standpoint, it is the duty of the builder to reason with him, and point out the difficulty; but it doesn't pay, nor does it contribute to the welfare of the builder himself, to be all the time going around with a chip on his shoulder, so to speak, for fear the man he is building for will want to make some change in the work.

This is the wrong spirit—it is like getting into the nagging habit, the longer a fellow keeps it up the worse hold it gets on him.

As illustrating the other side, a contractor was telling a few days ago of a man practically giving him \$5.00. Inquiry developed that, while the specifications didn't call for it, the owner concluded he wanted his porch flooring leaded in the joints. It wasn't much of a job and the carpenter did it without a murmur, not intending to make any specific charge for it. However the owner gave him \$5.00; it seemed just like finding the money!

But that wasn't the best of it—the carpenter felt better and the builder was pleased with the general attitude of the carpenter; and it goes without saying that when he has other building to do he will give this carpenter the first chance at the work.

It is easy to read between the lines and see that, while some people who build may be cranky and not know their own minds, it is easy for the carpenter to get into the habit of thinking everybody is a crank, and finally develop considerable crankiness himself. It is better to err the other way around, to be excessively accommodating rather than to be extremely cranky. Always if the builder wants alterations made or changes, it is best to meet the matter in a friendly spirit and not resentfully.



Timely Precautions at the White House

The World's Largest Wooden Building

By S. V. Bracher

NEW ZEALAND, with a population of not quite a million, has about thirty thousand civil servants. Probably one-tenth of the people are supported by means of salaries paid by the state. This peaceable army of government employees is scattered over the entire country, but is naturally quartered in largest numbers in the capital city of Wellington. Six hundred and seventy of its members spend the office hours of every day in one building, which all New Zealanders believe to be the biggest wooden building in the world. In a country where the government and the civil service mean so much, a building which contains the offices of most of the ministers, the cabinet room where they meet, and the headquarters of some of the principal departments, is of first-class national importance. It has two other claims to respectful attention. It comes as near being a piece

Its main part is 265 feet long. The wings, which project front and rear, are 160 feet deep, and the central portion, which joins them, like the bridge of a letter H, is 46 feet deep, exclusive of the main entrance projecting 18 feet from it. The building is four stories high, and with the exception of chimneys, strong-rooms and parts of the foundations, all the structural parts are of timber. The framing is of the tough Tasmanian bluegum. The studs of the two lower stories are 2 by 8, and those of the two upper stories 2 by 7. The joists throughout are 2 by 10. The weatherboards and internal joinery are kauri, the acknowledged king of New Zealand timbers. The whole structure rests on piles of another New Zealand timber—the totara—but even its fine qualities of resistance have yielded in many places to the attacks of time and the elements; so that the central portions of a great num-



Government Office Building, Wellington, New Zealand—The "Biggest Wooden Building"

of venerable antiquity as almost anything in this young country; and it will soon belong wholly to the past, for its life cannot now be prolonged more than a few years. As to its claim to superlative magnitude, readers of this journal may presently be able to judge.

It stands on an ample plot of land, amounting to about seven times its own ground space, and surrounded by four streets, one of which is the chief thoroughfare of the city. Its architectural pretensions do not amount to very much, for its pillared porches, its central pediment, with clock and royal arms, and the distribution of its bulk into boldly projecting wings only just suffice to save its external appearance from barrack-like monotony.

ber of the piles have been cut away and supplanted by concrete.

The height of the building, from the ground to the top of the cornice, is 54 feet. Above that is a low-pitched roof of galvanized iron. All the rooms within are 11 feet from floor to ceiling, and the majority of them are about 16 feet square, though there are several much larger. They number altogether 162.

There are three-quarters of a million bricks in the strongrooms and chimneys.

The style is Renaissance. Heavy quoins help to create the illusion of massive stone construction. The five porticos are ornamented with what in America would be called colonial pillars. The first floor win-

dows have circular heads, and those above have square heads with pediments and brackets.

It seems strange that in the principal administrative building of a country, which is in many ways up-to-date, there should be no such thing as an elevator. But such is the fact. Elevators were hardly thought of five-and-thirty years ago, and since that time, notwithstanding that there is plenty of space in the wells of the two main staircases, proposals to make good this defect have never got beyond the drawing of rough plans.

The age of the greater part of the building is about a third of a century. The contract was let in 1875 to Messrs. Scoullar & Archibald, who worked to the plans of Mr. W. H. Clayton, the state architect, and handed over the work to the government in the following year. It was quite a considerable undertaking for New Zealand, in its then state of development, when the white population of the whole country was only 376,000. Five or six hundred people were employed on the building, and the cost was \$268,800. But before that the government had reclaimed the site from the shallow waters of that part of the harbor at a cost of \$28,800. The south wing was added nine years ago at a cost of \$19,200, and again in 1907, the north wing was extended at the rear at a similar cost, making up a total of \$336,000.

Experts say that the building has from ten to fifteen more years to live. The later additions have been made in cheaper timber, so that the whole structure may reach the end of its usefulness at about the same time. At present it appears to be as sound as it was 30 years ago, though it has had to stand a good deal of knocking about in the way of shifting of partitions and rearrangement of rooms. It is likely, however, that it will not be called upon to live out all its natural life. A fire, which destroyed the parliament house, in December, 1907, has led to the adoption of a big rebuilding scheme, and within the next few years there will be a new parliament house, new departmental buildings, and a new residence for his excellency, the governor. The biggest wooden building is to be pulled down and its site cut up and leased for business purposes.

It is so long since there was a serious earthquake at Wellington that the old reason for timber construction would have lost its force, even if the steel frame and ferro-concrete had not come into favor. Fires are reckoned the great danger nowadays, and the possibility of a holocaust that would paralyze the whole machinery of government is what worries the present-day authorities. The new departmental buildings will be as nearly fireproof as possible. They will be handsome and permanent structures, like the half-dozen big building that have been and are being erected to house various state departments which have swarmed off from the old hive. When they are built and are made large enough to accommodate the offices in the old wooden structure and the others which are costing the state

some \$14,000 a year in rent to private owners, and when the new parliament house and vice-regal residence have materialized, Wellington will have a set of state-owned public buildings that will do credit to the country and to its capital city.



Individual Effort at Tree Planting

As a slight evidence of the awakening of the public to the necessity of renewing the growth of forest trees is the fact that many of the schools, towns, villages and cemetery corporations are planting trees. The trees are not planted for use as lumber, but as shade and ornament. Owners of suburban property, and of lands adjacent to large and growing towns and cities are planting shade trees with view to enhancing the value of the lands when the time comes to cut the lands up into town lots. Even this kind of tree planting is commendable, for it adds beauty to the landscape and sweetness and purity to the breezes, but it adds nothing to the timber wealth of the country.

Trees planted along the public roadways should be set outside the right-of-way of the roads, otherwise they become the property of the public, and subject to be used for the repair of the roads and to be mutilated by the corporations using wires and poles.

Tree planting as an investment, and for furnishing a future supply of lumber has not yet attracted the attention the subject deserves. On most of the farms too remote from transportation to justify the use of coal for fuel, the natural increase of the wild forest growth is ample for many years to come.

The trees most suitable for shade and ornament are not the kind that are usually best for lumber purposes. Those mostly preferred are the quick-growing soft maples. These are not well suited for lumber for any purpose, even at full maturity, and very few of the soft maples ever reach full maturity. They are so soft and brittle, and carry such a wide and heavy spread of foliage, that their branches cannot withstand even the ordinary summer thunder storms.

When tree planting is undertaken in earnest as a matter of long investment for profit, the soft, rapid growth trees will be abandoned for the hard and sturdy nut bearers. The oaks, hickories, walnut, pecans and others are slow to reach maturity, but they are durable, not likely to be blown down, as most of them have a large central taproot and large lateral roots. An acorn dropped in an out of the way place in good soil may make a tree that will last for a thousand years. Four centuries, however, is sufficient to bring any of our native trees to full maturity and all of them look good to a sawmill man when fifty years old.

As for tree planting in this country, we are making a poor start, and in a wrong direction, but it is an encouraging sign and prophetic of better things as the price of lumber advances, and the necessity for renewing our forests becomes more urgent, and the profits thereof become greater and more apparent.



An Interesting and Homelike Residence

By M. H. Northend

ABOUT a mile and a half outside the city of Newburyport, in Massachusetts, is located the interesting summer home of Miss Laura C. Hills, the well-known miniature painter. It stands on the crest of a high hill, and overlooks the surrounding country for a considerable distance, affording a view of the Merrimac valley and the sparkling waters of the Merrimac river. It was designed from a model made by Miss Hills, who delights in evolving miniature houses in cardboard, and was built to

directly overlooks a prim, old-fashioned garden with box-bordered beds wherein thrive a variety of the flowers our grandmothers loved.

The house is reached from the highway by means of a winding path to the entrance porch at the front of the house. This is quite novel in construction, its roof being formed by the projecting end of the second story. From this porch the door opens directly into a spacious apartment which serves the three-fold purpose of hallway, living room and dining room.

The walls of this room are plastered and stained a soft grey, and the woodwork is finished to correspond in tone. Broad, twin windows, two on either side of the room, allow plenty of light and fresh air to enter. Beneath one set of windows there is a built-in box-seat, cushioned in figured madras which corresponds in design with the pretty Dutch hangings that outline the seat space enclosure. The floor is of hard pine wood, stained a dark brown and highly polished.

An open fireplace occupies a position at one end of the room; above it extends a mantel ornamented by some fine pieces of old pewter ware. On either side of the fireplace is a built-in cupboard, the upper panels of glass permitting glimpses of some rare bits of old china enclosed within.

The portion of the apartment set aside as the living room is furnished in raffia and old mahogany. French windows open at one side onto the veranda, and at the left of these windows stands a desk at which Miss Hil's works on cool and stormy days. A piano occu-



House Built from a Cardboard Model

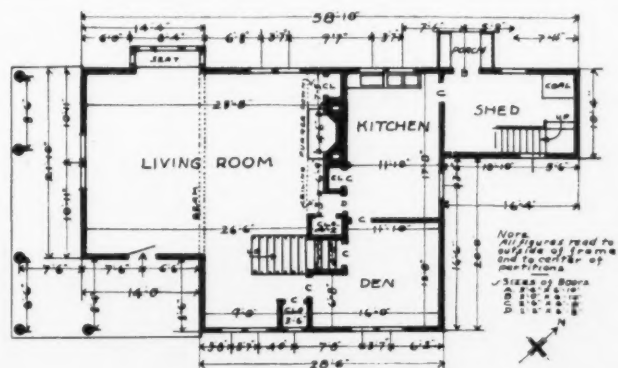
fit the furniture with which its rooms were to be equipped.

The exterior resembles a colonial homestead. It is stained grey, with white trim, and has the appearance of being old and weather-beaten, which is the effect Miss Hills desired to create. Across one side extends a veranda, its shingled roof supported by five Doric columns. It is partially screened by trellises over which vines have started to clamber, and it di-

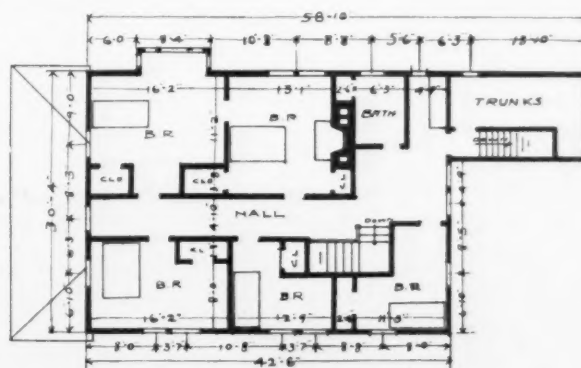
pies one corner, and several tables, placed about, serve as receptacles for books, magazines and knick-knacks, while a beautiful specimen of the old grandfather's type of clock stands at one side. The walls are adorned with a few fine prints and miniatures, and

to the kitchen. Just back of this cupboard is the staircase of quaint, artistic design, which rises by low treads to the rooms on the second story.

Beyond the stairway, from a little recess, a door opens into the den, an attractive apartment, lined with



First Floor Plan



Second Floor Plan

many ingeniously contrived bookcases are also found in various nooks and corners.

The opposite end of the apartment serves as the dining room, and here the furniture is entirely of mahogany. A feature of the room is the well-planned china cupboard which is built into the wall at one side of the passageway which leads from this room

shelves along one side, which serve as receptacles for many of the owner's favorite books. It connects at one end with the kitchen, a bright, sunny room with a dresser at one side, which suggests the Dutch or Colonial kitchen of long ago. The walls are painted pale blue, and the floor is of hard pine wood, stained and polished. One side of the wall is occupied by



The Dining Room Corner, Showing Unique Stair Treatment



Another View of the Comfortable Living Room

the end of a great chimney, which is the only chimney in the house, the rooms being so arranged as to surround it and thus obviate the necessity of any other.

Back of the kitchen is the shed where is stored the coal, etc., there being no cellar under the house, the building resting directly on the ground, English fashion. From one corner a staircase rises to a room

above, which is utilized as a storage place and is known as the trunk room.

On the second floor are five chambers, a bath room, and a large linen closet located in the hallway. The rooms are typically colonial in character and furnishings and much of the fine woodwork was obtained from an old Newburyport homestead. The house is ideal in location and appointments; the cost complete was \$3,500.



Poor Nervous Women

There are nervous women; there are hyper-nervous women. But women so nervous that the continual rustle of a silk skirt makes them nervous—no, there are no women so nervous as that!—*Fliegende Blätter*.



A Point of View

Mistress (to new servant)—Why, Bridget, this is the third time I've had to tell you about the finger-bowls. Didn't the lady you last worked for have them on the table?

Bridget—No, mum; her friends always washed their hands before they came.



The Kitchen

STEEL SQUARE

ALFRED W. WOODS

Possibilities of the Steel Square

AN INTERESTING AND PRACTICAL STUDY OF POLYGONS, SHOWING FROM WHENCE THEY COME AND WHERE THEY GO, AS ILLUSTRATED ON THE STEEL SQUARE

WHEN we closed our last article, we were preparing to take an aerial flight into the mysteries of angles, to gather information concerning the steel square. In former articles, we have had much to say about polygons. This is one of our favorite studies, and while at times we thought we

division and intersecting the circumference of the circle whose diameter is equal the side of the triangle. Where this line intersects the circumference, as from B to C, will equal one of the desired sides from which the others can be spaced. What is true in this case, is true in any of the other polygons.

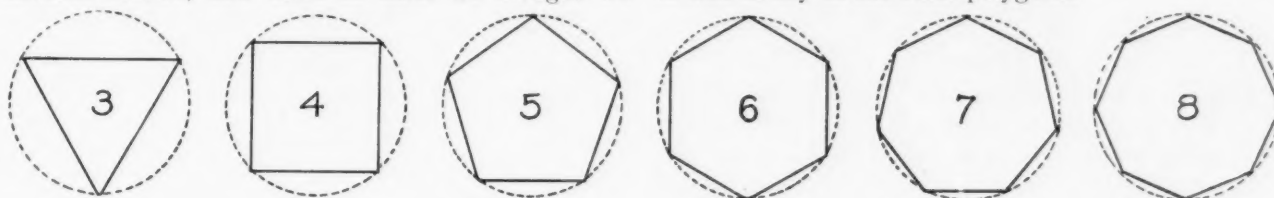


FIG. 236.

knew a great deal about them, there have also been other times that we were ready to admit that we did not know much about them after all; they are so changeable—but we love the “polys.” The regular ones of equal sides are our specialty. They are capable of many sides; so many in fact, that they dwindle down into obscurity, so that they are no longer discernible; but just where this takes place, depends on the diameter of the polygon. If it is of small diameter, the quicker the figure loses its identity and becomes nearly round, and rounder, and finally develops into the true circle. It is then without corners, and consequently no longer a polygon. This point is better illustrated in Fig. 236.

Here are six circles with a polygon inscribed. Beginning with the triangle (trygon) and ending with the eight-sided figure, or octagon, see how fast their sides diminish to that of the true circle. But here is the main point we wish to bring out. The triangle is the first one to take on shape—to contain area. It is the first polygon. It is the beginning—it is the mother of all the other “polys”—for within its simple make-up, any or all of the other polygons may be accurately constructed, as shown in Fig. 237.

Here is the triangle producing its nearest kin—the tetragon or four-sided figure. Here is the solution. Divide one of the sides of the triangle into as many equal spaces as there are to be sides in the desired polygon. In the example, we want four sides, and for that reason, four divisions are shown on one of its sides. Next, produce a line from the opposite corner of the triangle, as at A, passing through the second

In Fig. 238 are shown different polygons, one developed from each of the sides of the triangle. The triangle is shown in the center of the figure, with the spacing to correspond with the sides of the polygons. Here are shown three of the polygons, viz.: pentagon, hexagon and heptagon. These three might be erased

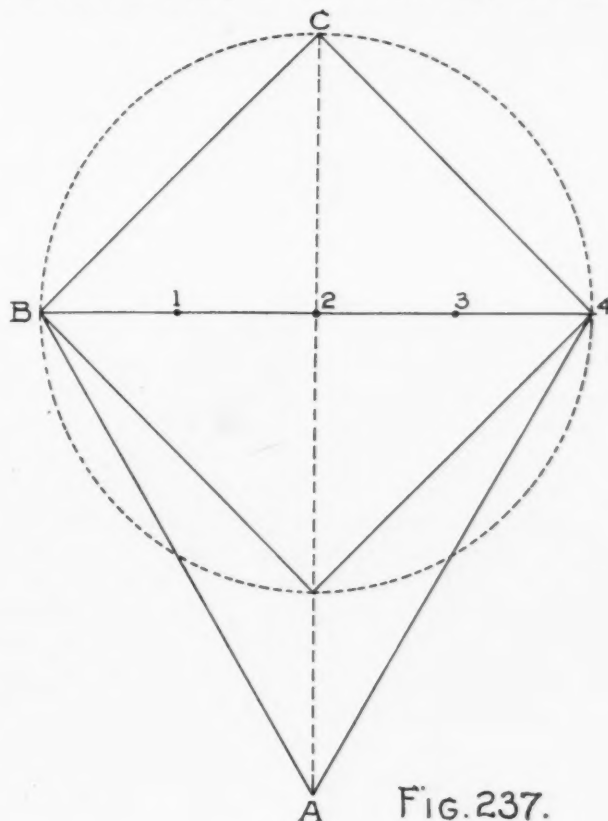


FIG. 237.

and three more, in their order, produced, and so on and on, until their identity is lost into the circle from which they originated into the three original parts.

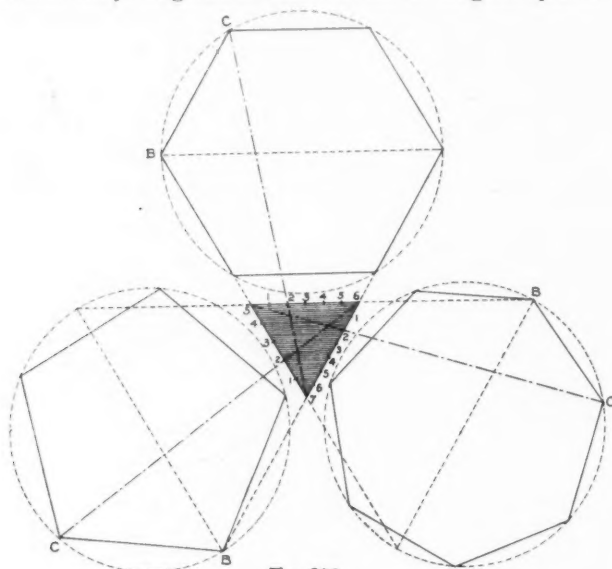


FIG. 238.

Here is a nice study for the ambitious mathematician, and we might add, for a few of the older ones too; what is there about the triangle that these proportions should exist? We would like to have a general response. We would like to have every one of the one million five hundred thousand, more or less, readers, of this magazine, tell us why. We will sit up and take notes.

But we hear someone say: "What has this to do with the steel square?" Nothing more than to lay out the angles from which to base the calculations for the other polygons, and as for the individual treatment, we have on numerous times illustrated the use of the steel square in finding the miters, lengths, etc., so we will not touch on that part of the subject now.

There is one more point in connection with the tri-

angle that we wish to bring out before closing, and that is this:

While the triangle is very capable of producing other polygons, yet—like the natural course of things—within itself, to produce its own kind, it cannot long endure.

In Fig. 239 is an example of this kind. From 12,

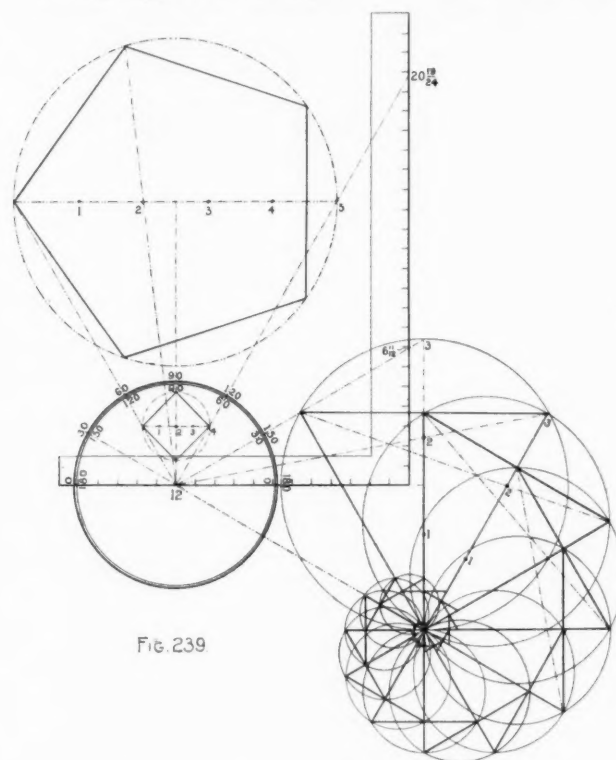


FIG. 239

directly above the tongue, is shown the triangle with a tetragon and pentagon in connection with same; but just to the right is shown another triangle, but in this it is made to produce itself. Note the retrogradation. They become smaller and smaller, until, like the way of all things, they are finally down and out.

An Experiment with Uneven Pitches

THE DIFFICULTIES ENCOUNTERED BY ONE SUBSCRIBER IN FRAMING AN UNEVEN PITCH ROOF—HOW THE WORK SHOULD NOT BE DONE

THE following letter came in our regular correspondence and furnishes a good illustration of the effort on the part of some to create something out of the ordinary without due regard for the after effect. We will, having already given it a personal reply, give it now more of a general answer.

"Silver Spring, Ind.

"Will you kindly answer the following questions: I have a roof to frame; the size of the house is 49 by 50 feet, with a rise of 11 feet; it is to have a ridge 18 feet long. The jacks on the ends are to be spaced 2 feet on centers and those on the side so that they will show same space at each corner. The extension of the roof on the 50 foot side to be 33 inches square out from the wall, while those on the 49 foot side are to show only 24 inches, and to be exposed. How much longer must the tail of the hip be to line up with other rafters, and what are their lengths?

Enclosed find sketch of roof and rafters.

"W. O. H."

The subject is one which in the nature of things will not work out from an architectural standpoint to the best advantage. Since the roof is practically square, the ridge, if the pitches were of the same incline on all sides—as they should be—would only be one foot long. Now, to extend this out to 18 feet would, necessarily, make a very radical difference in the pitches, unless gables were formed on the roof, which the sketch does not show. Without them, the pitches would be so changed that everything would be irregular. The shingle courses would not member; the jacks would not be in pairs and the cuts would be different. The projection of the cornice being different, the exposed ends would look bad, as the sketch calls for 33 and 24 inch projection. However, the difference would in reality be more than the above

PRACTICAL CARPENTRY

Casement Window Construction

HOW TO FRAME FOR CASEMENT WINDOWS, BOTH TO SWING IN AND TO SWING OUT—WORKING DETAILS PRESENTED SHOWING STORM-PROOF CONSTRUCTION

WE HAVE received the following letter, which suggests a subject of growing importance and of timely interest to our readers:

SPOKANE, WASH., FEB. 2, 1909.

EDITOR OF THE AMERICAN CARPENTER AND BUILDER.

Dear Sir: In your January number you show a detail for framing waterproof windows. I have a triple window. The two side sash are casements, while the center sash is stationary. The casements must swing in. How shall I frame same? If I follow your de-

tailed to clear the stool. The author has used this method many times in actual practice, and same has always given satisfaction.

We submit also the complete working detail drawings for casement windows which swing out, and with fly screen on the inside. The window sash are hinged at the side and the screens at the top, the latter being hung on hook hinges so that they may be easily removed. Screens made in this manner may be opened without interfering with the window shades. It is in-

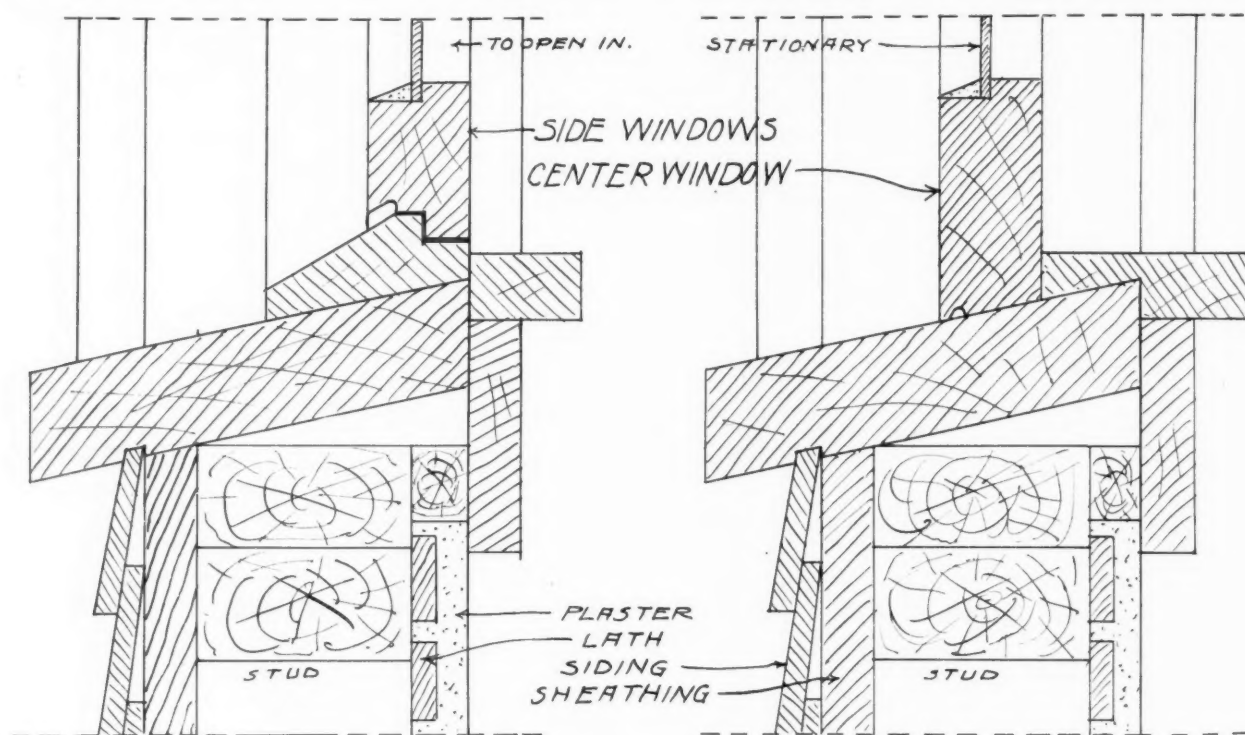


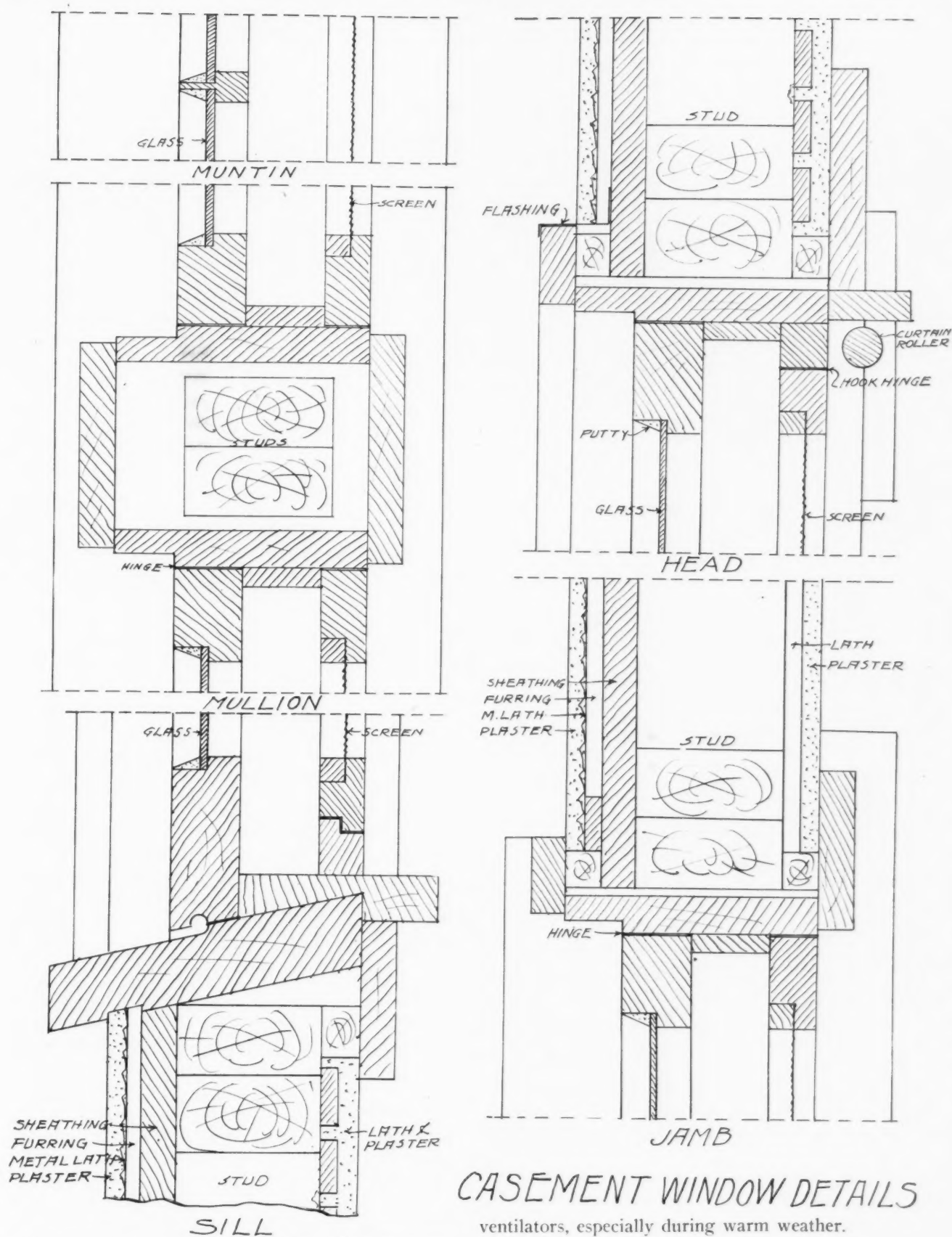
Fig. 1.—Detail of Storm-Proof Casement Window—Designed to Swing In

tail for the casements and use regular stock stool for the center sash it will not be in line. Please send me instructions how to proceed, and oblige,

FRANK DANILSON.

We submit herewith detailed sections through the sills of both the center and side windows. Both the outside sill and the inside stool continue through in line and should be in one piece, and the casements have an additional sill, as shown, which raises the sash

tended to use some patent adjuster for the operation of the casement sash in windows of this kind, as to open the screen in order to operate the sash is a great inconvenience. We do not advise the rebating of casement jambs, which adds nothing to the tightness, but which materially weakens the construction of the window. Casement sash should be strongly made to prevent sagging and consequent opening of the joints and difficulty of operation. It is not improbable that even-



CASEMENT WINDOW DETAILS

ventilators, especially during warm weather.



tually casements will replace entirely the now commonly used and unsightly double-hung window for residence work. In Europe, the latter are almost unknown, the casement being the universal window. Once used in a home the owner will not only appreciate their beauty but also their great superiority as

When laying out holes in the belting for lacing do not locate them so near together that the strength of the belt will be impaired. It is better to have the lacing a little wider to strengthen the joint than it is to use a narrow lacing with more holes.

Insulated Doors for Cold Storage

THE DIFFERENT TYPES OF COLD STORAGE CONSTRUCTION AND THE PRINCIPLES OF INSULATION DISCUSSED WITH SPECIAL REFERENCE TO DOORS

By T. B. Kidner

OUR good friend and confirmed reader, J. H. Summers, of Calgary, Alberta, has taken the editors of the AMERICAN CARPENTER AND BUILDER at their word, and has responded to their oft-repeated admonition—"If you don't see what you want, ask for it." A portion of a recent letter is as follows:

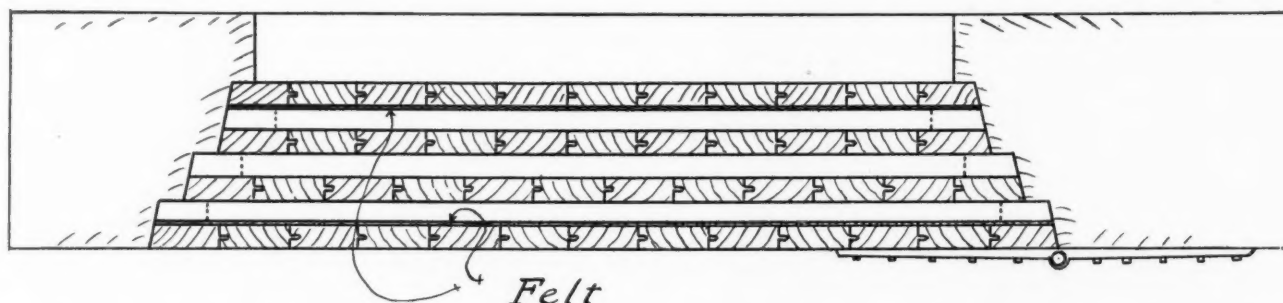
"This spring I expect to be working on a cold storage; hence, when you can afford the space I would like to see a discussion of the best methods of construction and insulation (especially insulated doors) of a cold storage as used in creameries and packing plants."

Authorities on insulation are by no means agreed as to the most effective method of preventing the passing of heat or cold through the walls of ice houses, refrigerator cars, frost-proof rooms and similar structures.

Some of the manufacturers who make a specialty

packing of walls, etc., with sawdust or other substances. One is that in some climates the lower parts of the walls become infested with ants and other insects that apparently find a congenial dwelling place amongst the packing. The other objection is that should a leak occur, the packing becomes saturated and, not being able to dry out, soon sets up rot in the structure. Quite recently the writer saw a valuable church badly damaged by an unsuspected leak in a valley, which had let water down into a sawdust-packed wall and caused studding, laths and siding to rot and give way.

Some makers, again, prefer a combination of dead air space and packing, as shown in one of the examples in Mr. Walsh's interesting article on this subject in the August, 1908, number of this magazine. But it will also be seen (a significant sign of the times) that Mr. Walsh strongly recommends an all-concrete house as giving the best results. Of course, the door



of the construction of cold storage plants pin their faith to dead-air spaces as the most effective non-conductors. The walls of buildings insulated by this method consist of several thicknesses of boarding with a space of a couple of inches or so between each layer. The boarding is rendered impervious to the passage of air by being covered with heavy felt made for the purpose, and if the workmanship be good, there is no doubt that this method is an excellent one. But as its final efficiency depends upon the wood and the workmanship, it will be readily seen that failures may result. The wood may shrink, warp or twist, or may swell from moisture, and thus open some passages through which a circulation of air is established, thereby spoiling the non-conducting quality of the dead air spaces. In the workmanship, a few badly fitted joints, a carelessly nailed board or some other slip, would similarly render the dead air spaces useless for their intended purpose.

Other manufacturers advocate and practice packing the spaces between the several thicknesses of boarding with dry sawdust, slag wool or other non-conducting material, and many large and successful cold storage plants have been built on this plan. In the writer's opinion, there are two objections to the

would be of wood, and Mr. Walsh says, "The door is framed with wood and made of double thickness, or with an outer and an inner door."

In the October, 1908, number of this magazine, the present writer had an article describing the small cold storage houses recommended for farmers and others by the Ontario government, built on the packed principle.

For doors, there is no doubt that the best method is to provide several dead-air spaces formed by layers of boarding and felt. A form commonly adopted is shown in the accompanying sketch. The splayed jambs not only allow the door to open easily, but provide several meeting surfaces in the different rabbets, which all help to prevent the passage of air. As an additional precaution, however, these rabbets are often fitted with rubber draught tubing, against which the door closes. While these doors sometimes have as many as four air spaces in them, it is usually sufficient to have but two layers of felt, as indicated.



"That man is so honest he wouldn't steal a pin," said the admiring friend.

"I never thought much of the pin test," answered Miss Cayenne. "Try him with an umbrella."

Perspective Drawing Simplified

THE FIRST OF A SERIES OF ARTICLES GIVING THE PRINCIPLES OF MECHANICAL PERSPECTIVE AND TELLING HOW THEY SHOULD BE APPLIED

By Edwin V. Lawrence

IT IS the purpose of this and the following articles to give an elementary, yet practical knowledge of the principles of perspective and their application to the drawing of a building. It may be well at the outset to state that there are many methods of reaching the same result, so in this series the methods that will give the most information are used, and the reader will find other ways coming readily as he works out his problem.

Perspective is that way of drawing a plan, elevation or combination of both which will show the pictorial or actual view from a fixed point.

In the first sketch, which is a picture of yourself viewing a house in perspective, the rays of light, coming from the object to the eye, outline the picture; and, if these rays are intercepted by a transparent plane

the head is turned from side to side, this sweep of the central visual ray will form a horizontal plane, called the eye level, and the meeting of this plane with the picture plane is the apparent horizon.

If you will stand in the center of a straight railroad track, so placing yourself that your central visual ray will be parallel to the rails (Fig. 2), you will observe that the horizon and your eye level will coincide, and also that all lines parallel to your central visual ray, such as the rails, wires, tops of poles, top and bottom of the signboard, and so on, including all lines in that system of parallel lines, appear to come together and vanish with your central visual ray at your center of

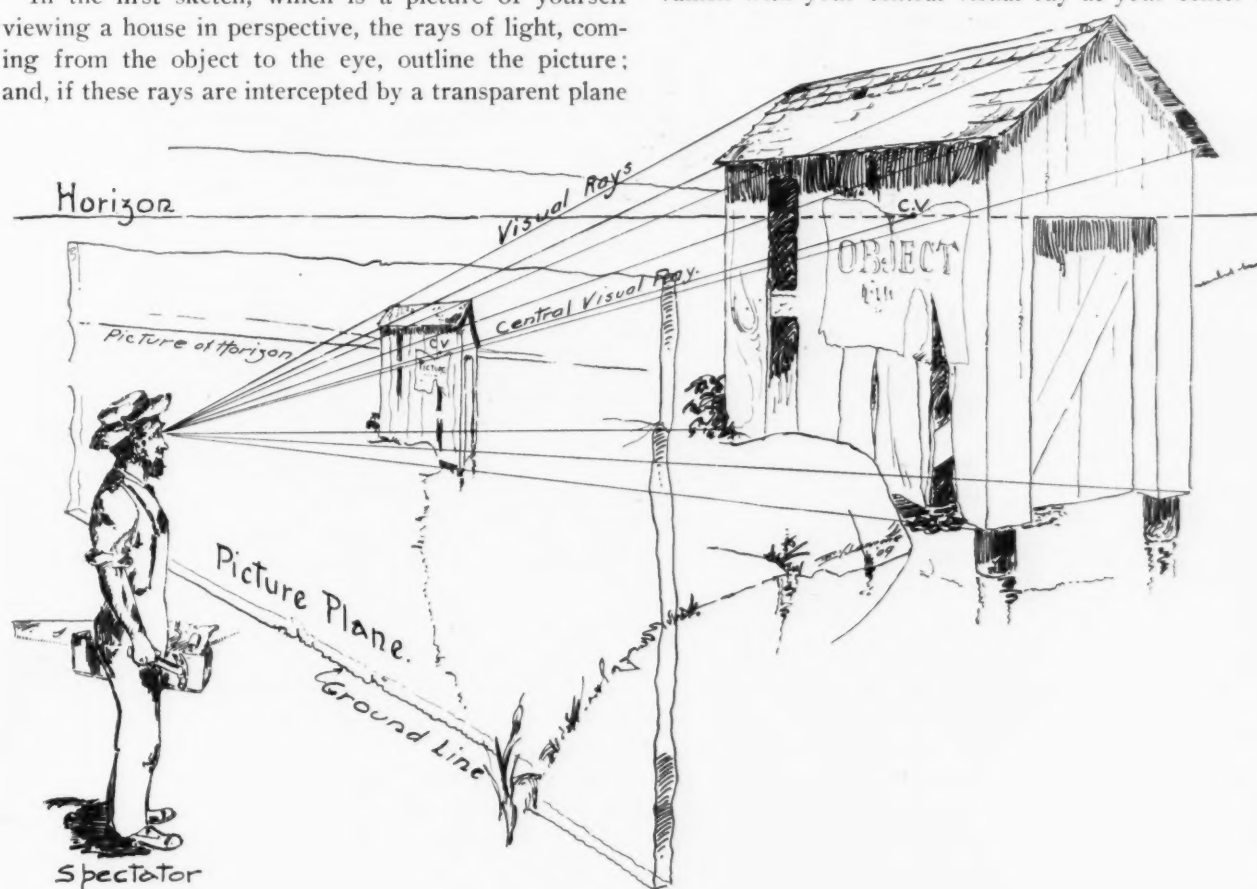


FIG. 1. A Picture Showing What Perspective Is and Illustrating Its Basic Principles

at right angles to the central one, the points of intersection will form the picture on it. Therefore, this plane is called the picture plane. The rays of light (visual rays) from the object to the eye will, roughly speaking, form a cone, and the central ray or axis of the cone, coming directly from the object to the eye will intersect the picture plane at right angles directly in front of the spectator's eye. This spot of intersection is the center of vision on the picture plane.

As it is assumed in seeing the object that your head is erect, the central visual ray is a horizontal line. If

vision. Reading this fact inversely: To find the vanishing point of any set of parallel lines, so place yourself that your central visual ray is one of the set and your center of vision, or the intersection of your central visual ray with a horizon, is the desired point. As the wires, the top of the billboard, or the tops of the cars are above the eye, they must, in order to fulfill the preceding truth, appear to slant downward, and just as much must those lines below appear to slant upward. A line upon the eye level, as the top of the nearest car, will have no inclination.

When the main lines (as in Fig. 2) are parallel to the central visual ray, and, since it follows that lines at right angles to this ray—such as the ties—must be parallel to the picture plane, the picture is said to be in one point or parallel perspective.

The second paper in this series will deal with a definite problem in parallel perspective; so to analyze Fig. 2, step by step, the following rules may be found:

(Rule 1). Draw a roadway as wide as your paper, parallel to the C. V. R. (Rules 2 and 5). On the edge of a sidewalk 1 foot high and 3 feet wide locate a

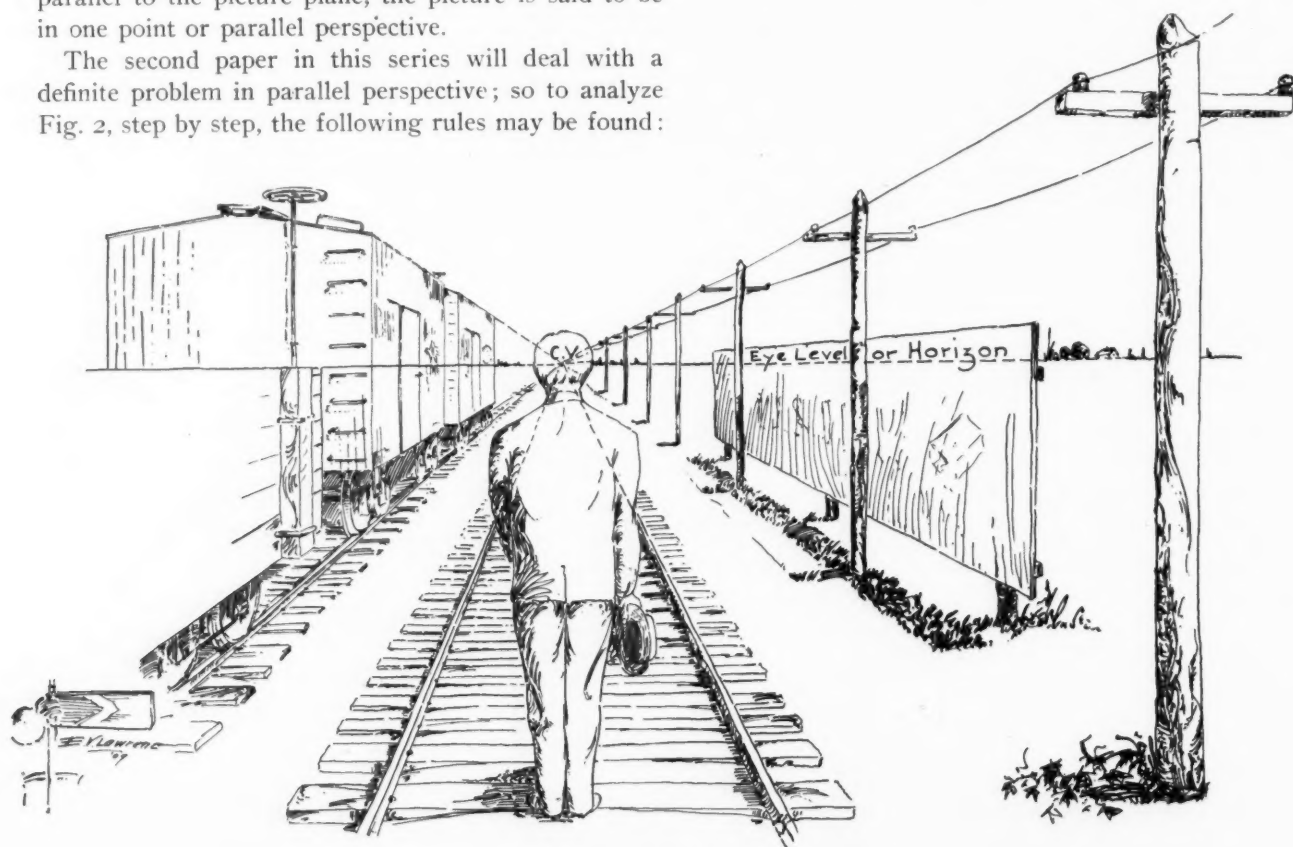


Fig. 2. An Example of Parallel Perspective

In parallel perspective: (1) The spectator's center of vision (C. V.) becomes the vanishing point (V. P.) for the main set of parallel lines. (2) All lines at right angles to the central visual ray (C. V. R.) are parallel to the picture plane (P. P.) and are drawn their exact shape (as the lines forming the end of the car), those coinciding with the P. P. their apparent size, and those parallel to these last, diminishing regularly as they recede, that is, as the ties, or the telegraph poles. (3) The length of the diminishing lines parallel to the P. P. decreases inversely as they go from the spectator's position (S. P.), which is seen quite readily in the length of the pole and ties. (4) Lines or spaces at right angles to the P. P. foreshorten inversely as they recede, as the lengths of the cars, or the distance between the poles. (5) Lines parallel to the P. P. above the eye appear to vanish down, and those below, upward.

Many other facts may be gleaned from a careful study of the drawing, or better yet, of nature. It is quite necessary that you try to apply the facts gained; and, in order to do it, the following problem is suggested.

Use a definite scale ($\frac{1}{2}$ or 1 inch to 1 foot), and draw a ground line at the bottom of the paper and the eye level or horizon at the proper place (text); were you standing erect on the ground; locate the C. V.

lamp-post twice as high as your head (Rule 2). Somewhere back in the picture, draw another road at right angles to the first road and place a lamp-post on one corner the same height as the first (Rules 2 and 3).

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An Ingenious Device

In many mills where there is machinery on an upper floor, the matter of getting lumber upstairs is often one of manual labor, and to get around that part of it a mill man I know devised a roller elevator that, for simplicity and rapidity, has anything else of the sort beat to a standstill. The upper floor is 14 feet high and it was quite a job to shove stuff up that high, so a frame was suspended from the ceiling, about halfway between the upper and lower floors, and on the bottom of this frame a power-driven roll was placed, over which was suspended a loose roll for a pressure roll. The end of a board was placed between the two, and in line with the box leading through the floor, and the board was rapidly run up to the upper floor, right into the hands of the man above and close behind the machine for which it was intended, or else on a truck, if it was to be removed to some remote machine. This unloaded the wagons rapidly, saved one handling and did not let the load touch the ground, and one of the mill hands suggested this little trick.



Where and How to Fit Up the Shop

"HANDICRAFT" WORK AND ITS IMPORTANCE IN THE HOME—SUGGESTIONS AS TO THE LOCATION OF THE SHOP—ITS PROPER EQUIPMENT

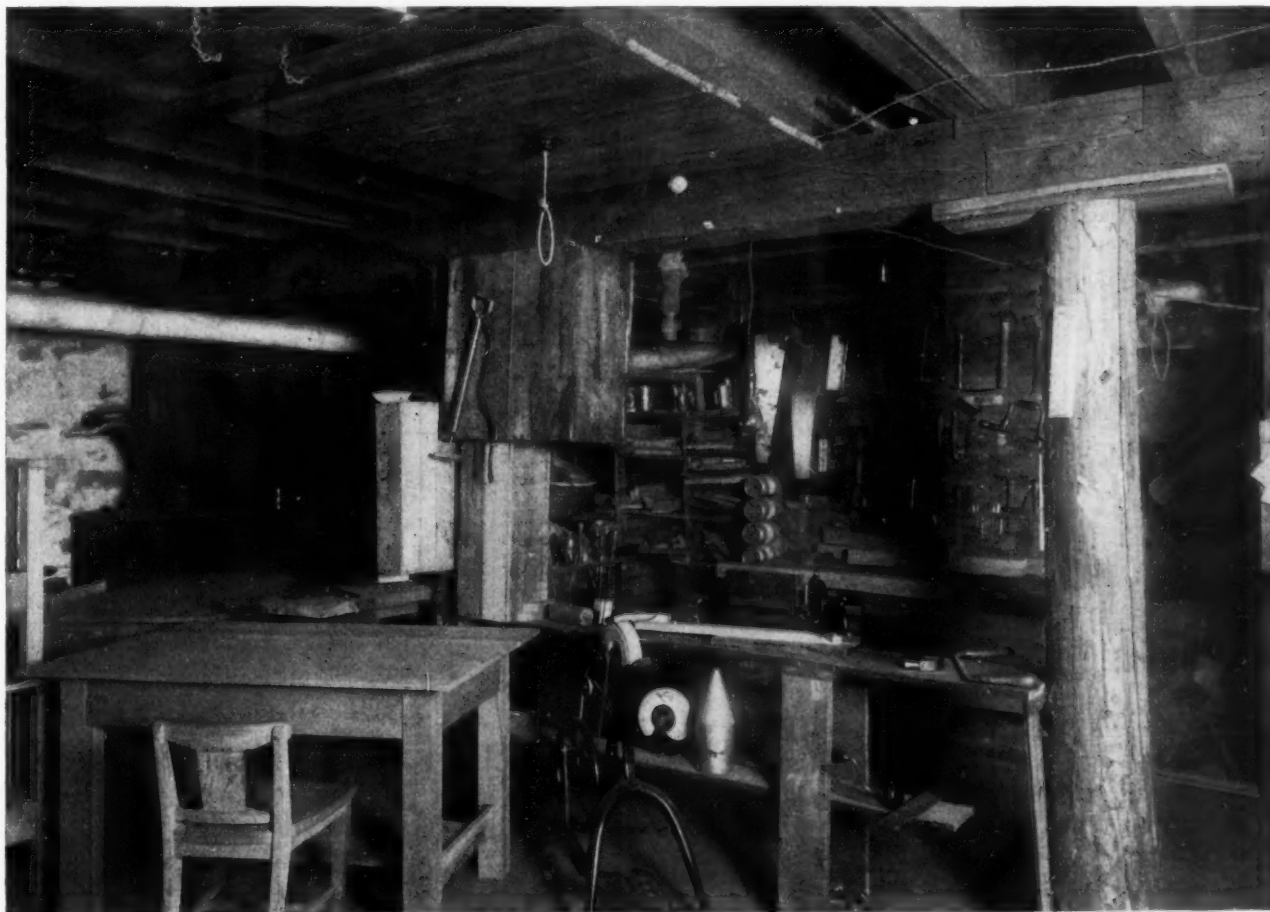
AT NO time in the past has there seemed to be so much interest taken by men and boys in a home workshop as at the present. One can hardly enter a home but that he finds enthusiasts who are anxious to make known the various interesting pieces of handicraft about the home, and to introduce one to the place in which the owner does his work and in which he finds much pleasure and interest.

Not alone do the men and boys seem to be affected, but each community has its women enthusiasts in handicraft. Their work, it is true, partakes more of the lighter arts-crafts, such as pottery, metal work, basketry, etc., but the spirit is the same and their pride in their "shops" is no less intense than is that of the men folk.

That this interest in manual work is making itself known is evidenced by the fact that far-sighted and progressive architects are putting into their house plans rooms which they choose to call workshops. The workshop is placed in a desirable location on the first floor, convenient to the living room, and is intended, I presume, for the lighter types of home work. It can be used as a study or sewing room.

This great awakening to the value and pleasure of home work is in no small part traceable to the teachings of Wm. Morris, an Englishman, who strove, by precept and example, to impress upon his people the value of simplicity and honesty in all things, whether social or material.

The direct treatment of furniture design which has



A Basement Workshop, Well Equipped—Some Finished Pieces to the Left

made possible and desirable home work in wood, is one of the results of his early efforts, his name being attached to a chair which was known for its simplicity, honesty and comfortableness.

Manual training scholars are developing in no small



Morris Chair Frame

degree an appreciation of and an inclination for hand-work. One who has "passed through" a stiff course in shop work of a good manual training school, has had his mental horizon broadened considerably, more than the one who has merely "conned" over the dead languages. He is not inclined to belittle the work of even the humblest craft worker, for he knows somewhat of the effort necessary to master the crafts.

A spindly gentleman of the traditional academic type was recently expressing his disgust over the fact that a young man was intending to learn blacksmithing at school. "Why," said he, "not go to old man A—?" There was not much in what he said, but the way in which he expressed his opinion indicated quite well his feeling of disrespect for the worker, as well as his works; and the young man was half ashamed he had decided to learn the craft. However, he did take the work, and after he had tried time and time again, and had almost sweat blood trying to make so simple a thing as a weld, a thing he had seen the old blacksmith do many a time with no apparent effort, his feeling of respect for the blacksmith and his work increased wonderfully in spite of the sneers of the gentleman of "culture and learning."

The boy who has once got an insight and interest in the various crafts of wood and metal working in school will likely keep it up in later life, no matter what his calling may be. So, too, it is with the girls in

their work; hence, the workshop in the home.

For some issues past, the Home Workshop has been offering suggestions in furniture building especially suited to the craftsman familiar with the details of furniture construction.

Judging from letters received by the writer there are many readers of this department engaged in the professions, and therefore not familiar with proportioning of parts, who desire complete working drawings of each piece; in deference to these, we shall next month present complete plans, elevations and perspectives of two or three good pieces.

This department aims to be helpful to the amateur as well as the experienced craftsman, and so presents in this issue a list of tools needed for the making of such pieces as will appear herein.

The beginner should understand that it is best to have a few tools, and those good ones, rather than to stock up on a lot of cheap ones. A cheap tool that will not "keep an edge" is a poor investment from any point of view. Nor is it necessary to purchase all the tools listed here at once. They can be procured as needed. However, we have listed only those which will be almost a necessity, and as most firms make liberal discounts on quantities purchased, one who has the money to spare will be making good interest on the money invested to buy all at one time.

First the bench. If one wishes to have everything of the best in appearance as well as in usefulness, he can purchase a cabinet-worker's bench for most any price he cares to pay—the price depending on the size and quality. An excellent bench with a top, made of two and one-fourth inch maple strips glued up to prevent warping, having a length of seventy-eight inches



Piano Bench—A Favorite Piece

and a width of twenty-four inches, can be bought for \$8.50, list price. A smaller size, twenty-two by fifty-four inches, can be secured for \$8.50, including a rapid acting vise.

A rapid acting vise, while not a necessity, is a great saver of time. A person who has never used one should investigate before purchasing one of the old kind.

The person of an economical turn of mind may

easily and cheaply put up his own bench. He should build it to the wall, so placing it as to bring his light upon the work in hand.

A plank of oak two inches by twelve inches should be used for the front of the top. The rest of the top



A Well-Made Writing Desk

may be made of one inch stock "furred" up to the same level as the plank. A vise, such as is found on carpenters' benches, can be made. The fixtures can be purchased for about sixty cents. The April, 1908, number of the *AMERICAN CARPENTER AND BUILDER* described the manner of putting the bench together.

When it comes to the question of purchasing tools, the greatest latitude must be allowed. The following list represents tools which will be found absolutely necessary for ordinary cabinet work:

- | | |
|---------------------------|-----------------------------|
| 1—jack plane, 2 inch bit. | 1—oil stone, fine, 6 by 2 |
| 1—6 inch try square. | by 1 inch. |
| 1—10 inch swing ratchet | 1—oil can. |
| brace, ball bearing. | 1—10 inch back saw. |
| 1—12 ounce claw ham- | 1—24 inch cross cut saw. |
| mer. | 1—26 inch rip saw. |
| 1—hickory mallet. | 1—1 inch beveled edge, |
| 1—6 inch screw driver. | handled firmer chisel. |
| 1—boxwood marking | 1—spokeshave. |
| gauge. | 1— $\frac{1}{2}$ inch same. |
| 1—6 inch T bevel. | 1— $\frac{3}{8}$ inch same. |
| 1—6 inch dividers. | 1— $\frac{1}{4}$ inch same. |
| 1—all-bristle brush. | |

To these might be added a smooth plane, jointer, block plane and compass saw.

Auger bits can be bought as needed. A full set is convenient, through hardly necessary. A nail set, counter sink, steel square and four bar cabinet clamps will be needed. Also a plane for making rabbets and grooves.

The cost of this lot is not so great as one might

think, when purchased as a whole. Some firms have cabinets in stock upon which they make special prices, in which the list of tools is not far different from the above. It is well to investigate their quality—only high grade tools should be purchased. If you are not informed, ask someone who is. You may depend upon it that the kind your carpenter friend uses and will recommend will be satisfactory.

There can be no satisfactory work done with dull tools. A grindstone will be needed. The kind that is run with the feet is best, as it leaves both hands free to hold the tool.

A miter box is very convenient and will save much time—and possibly material—in the hands of an amateur.

Of course we might add to these many other conveniences. We know one suburbanite who has a lathe, power saw, etc., run by an electric motor. He spends no more upon this hobby of his than his neighbor does upon golf, and in the end has beautiful pieces which his children will be glad to treasure after he is gone. Nor is this all there is to it. He has two growing sons who find their place of pleasure and recreation in this same shop. The fellowship of father and sons is "good to look upon" in this day when fathers have "no time" to give to their sons, sons who, having nothing else to do, spend their time on the streets, running wild, causing trouble for law-abiding citizens who are so unfortunate as to live within the range of their depredations.



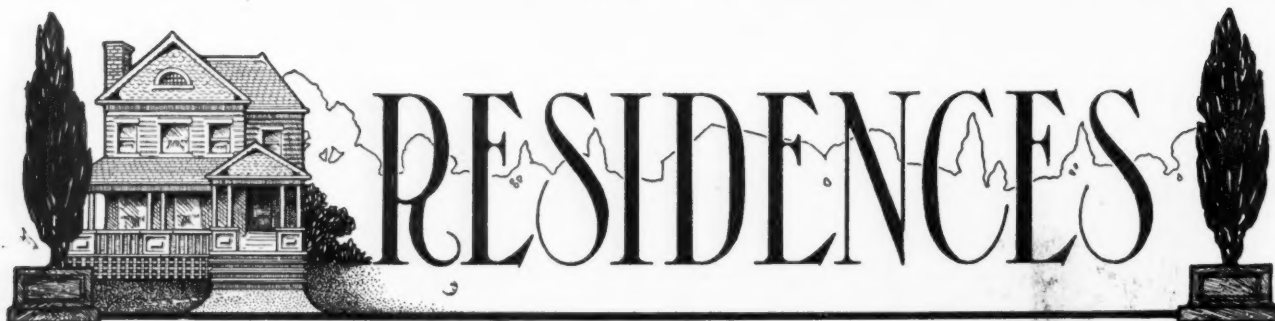
A \$30,000 House

We all like to see nice houses, whether we ever expect to own one or not. This house was built at the intersection of two magnificent residence streets in a section of the city where the average valuation of vacant property ranges from \$150 to \$300 per front foot. The only criticism against this residence is that the house is too big for the lot. Such a valuable house



Valuable House Cramped for Room

should have more ground around it, and there should be not only a broad expanse of lawn, well kept, but the owner should see to it that vines and shrubbery should contribute an artistic setting commensurate with the value of the residence.



Attractive Modern House Designs

PHOTOS WITH FLOOR PLANS OF A BEAUTIFUL COLONIAL RESIDENCE, OF A THREE-FAMILY HOUSE ARRANGED FOR FRONTAGE ON TWO STREETS, AND OF A WESTERN BUNGALOW

WE SHOW herewith a house designed in simple Colonial style, which has a stateliness that at once attracts attention. The design shows how complete a house may be when the chief consideration is excellence and not the least possible expenditure. Openness to fresh air and sunshine has

ing a suburban home. At the right are the living room, with mantel and closet; the dining room, with sideboard built in; and on the left, the library, with bay window and commodious bookcases; beyond which is the service portion of the house, fitted with all modern conveniences.

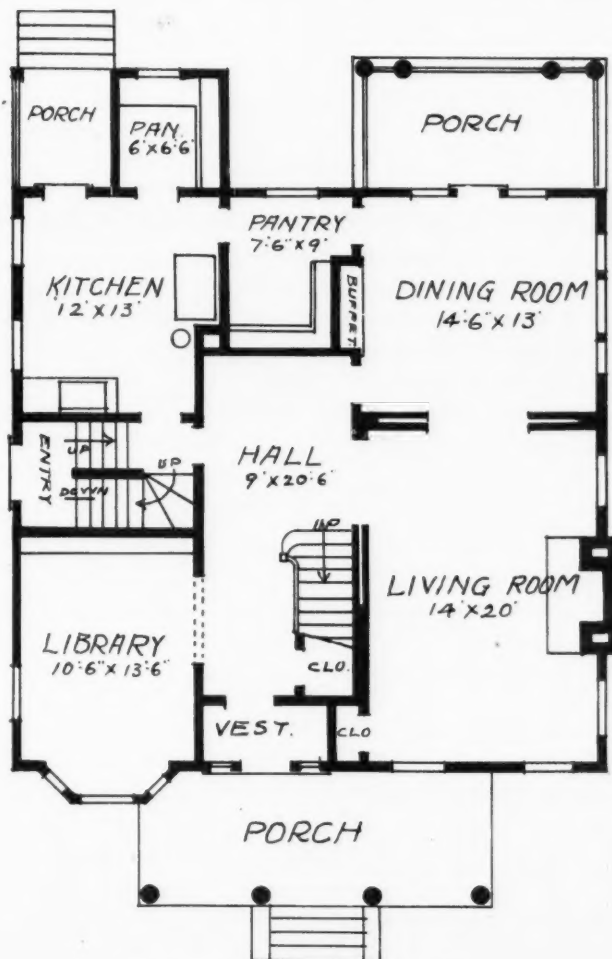


A Fine House of Simple Colonial Design

been kept in mind, and each of the principal rooms has two exposures.

From the finely proportioned porch one passes through a front door with side lights, enters the vestibule, beyond which is the reception hall forming the center of the house, and giving a feeling of freedom and spaciousness which must appeal to persons build-

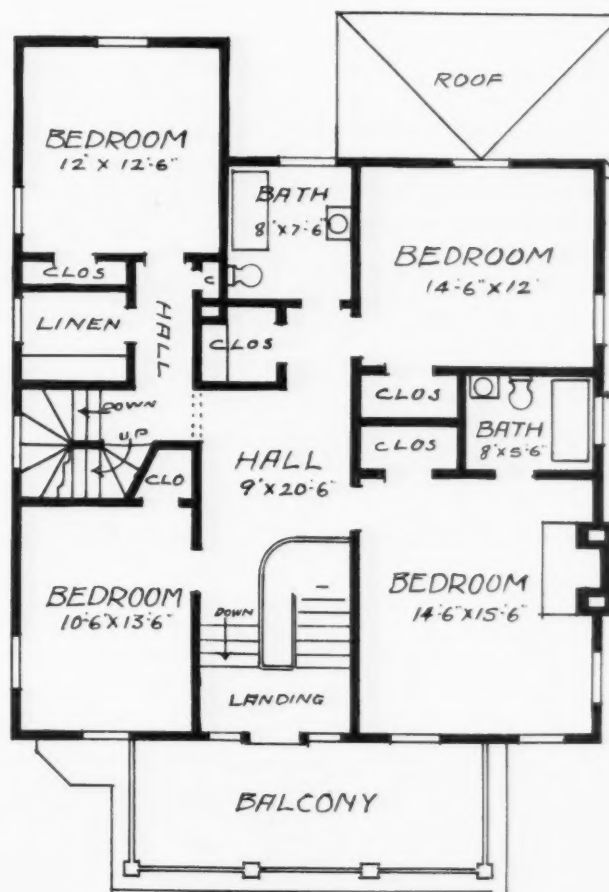
The front door and front stairs, as well as the side door and back stairs, may be reached directly from the kitchen. The hall is lighted by large windows on the landing, which also gives access to a large balcony. Four bed rooms, two bath rooms and numerous closets occupy the second floor, and the attic may contain two more bed rooms if so desired.



Colonial House—First Floor Plan

An Attractive Bungalow

The rise and spread of the bungalow idea in residence architecture has been truly remarkable. Having



Colonial House—Second Floor Plan

its origin a few years ago in southern California as a summer cottage type, it proved so popular that immediately it was employed there for the design of the more expensive permanent residences.



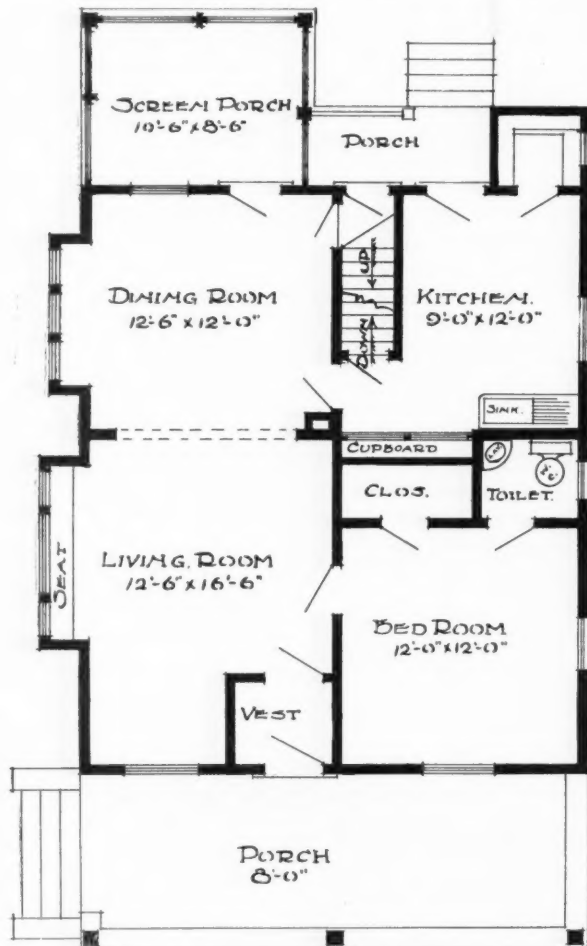
An Attractive Bungalow, Built for Geo. H. Gillespie, Omaha, Nebr.

Progressive architects in the north, in the middle west, and in the eastern states, next felt the sting of the new idea. The old forms, which they had accepted without thought or question for three generations, appeared stiff, formal, inconvenient and unlivable in the light of this new style. Architecture had previously meant the designing of churches, palaces, public buildings; now the best architectural thought of the country was aroused to solve the problems of the dwelling house.

We all know the chief characteristics of the bungalow—roomy, broad and low; prominent roof, cool

streets, and it was desired to plan a building for three families which would present two equally attractive fronts with the rear doors showing as little as possible. It was also desired that all rooms be light and airy, and that the cost should not be excessive.

The building contains two flats of five rooms each, and one two-story apartment of six rooms. All have bath rooms, pantries and numerous closets, and are provided with separate heater rooms and laundries in the basement, the latter connected by chute from the rooms above. The servant's rooms and storage rooms

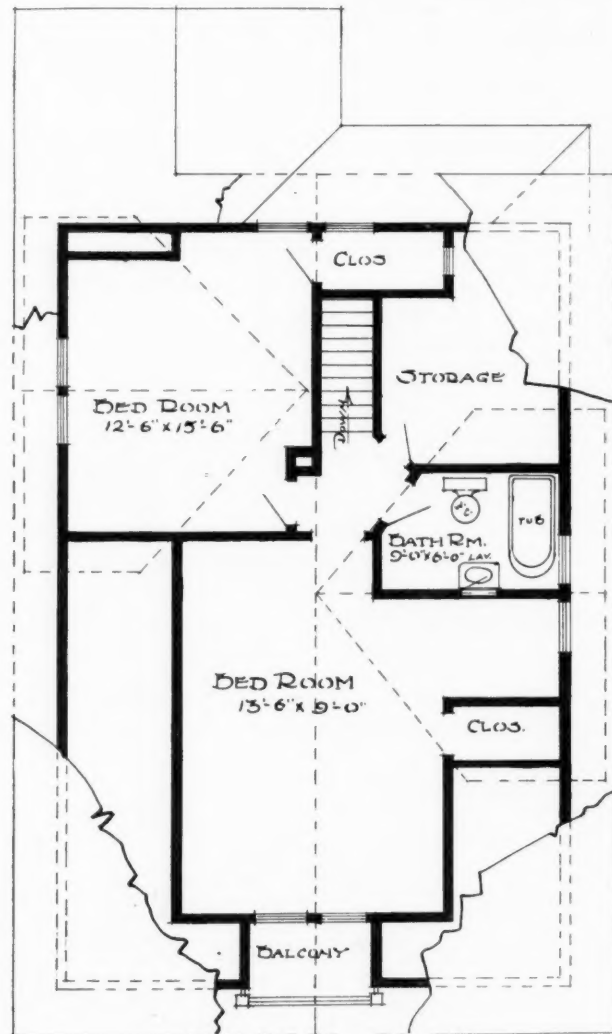


Bungalow—First Floor Plan

verandas, comfortable living rooms; shingles, cobble stones, honest construction, homelike atmosphere. The accompanying design, the house of Geo. H. Gillespie at Omaha, Neb., is a typical example of this style. It was designed by B. F. Miller. A study of the floor plans will prove interesting and valuable.

A Three-Family House

The building shown herewith was erected several years ago at Madison, Wis., for Mr. C. N. Brown. Messrs. Rawson and Paunack were the architects. The problem presented, which is one quite often met with, was unusually well solved. The lot, the second one from the corner where two streets come together at an angle of 45 degrees, had frontage on both



Bungalow—Second Floor Plan

for each of the three apartments are in the attic.

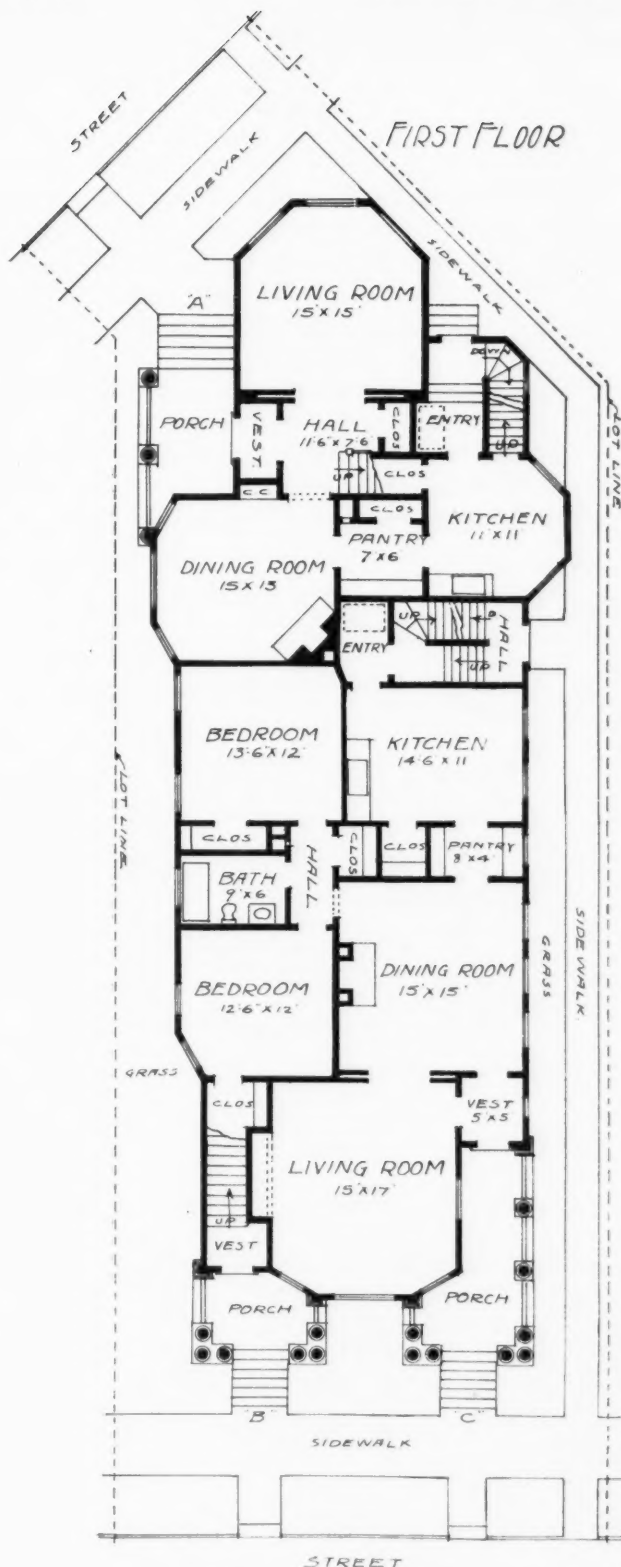
The building contains all modern conveniences of every kind and makes an ideal investment for the owner.



Largest Concrete Bridge

The great concrete bridge over the Wissahickon creek in Philadelphia will be declared open to the public in a few weeks. This bridge is the largest reinforced concrete bridge in the world, and has attracted attention among prominent engineers throughout the country.

The bridge is 525 feet long and is 147 feet in



First Floor Plan—3-Family House

height. The main arch is 233 feet long, while the approach spans measure 53 feet each. It required more than two years to build this bridge, over 300 men being continuously employed. Over 19,000 cubic yards of concrete were used, weighing 40,000 tons.

Before the concrete work was begun a false work bridge was constructed of 360,000 feet of timber and 130 tons of steel. The total cost of the bridge was over \$260,000.



3-Family House with Frontage on Two Streets

How to Build a Portable Open-air Stage

USEFULNESS AND NEED OF A SATISFACTORY SOUNDING BOARD AND SCENERY FRAME FOR OPEN-AIR MEETINGS—HOW ONE MAY BE PROFITABLY BUILT AND HANDLED

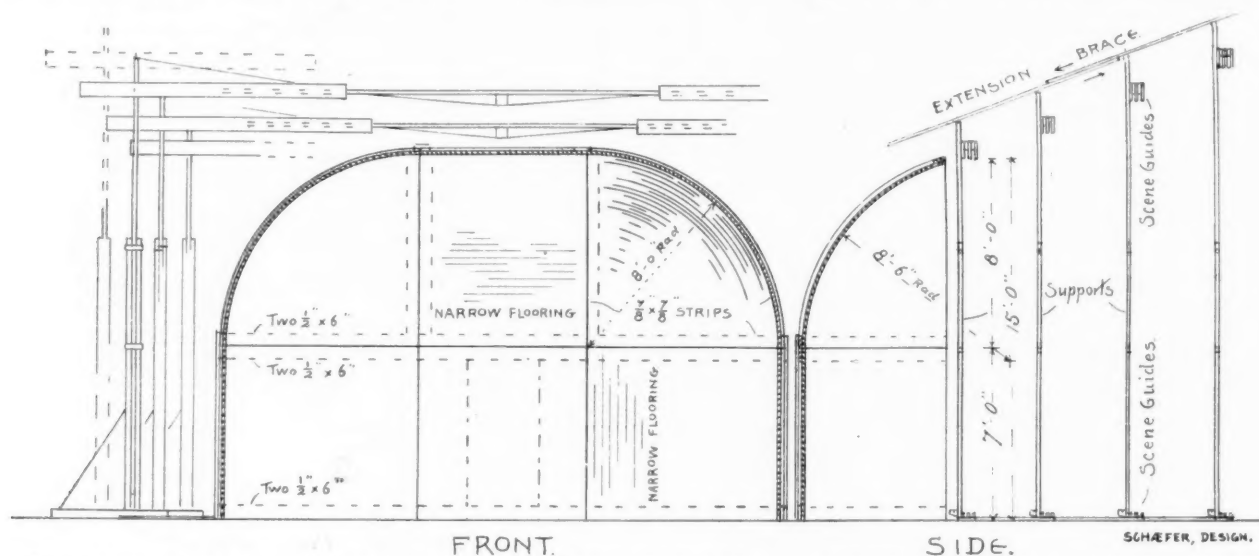
By Harry Shepherd

ONE of the most necessary articles at outdoor meetings is a good sounding board behind the speaker's platform. Such an arrangement is in demand for all kinds of occasions; it makes many desirable forms of entertainment practical that, otherwise, could not be given in the open air.

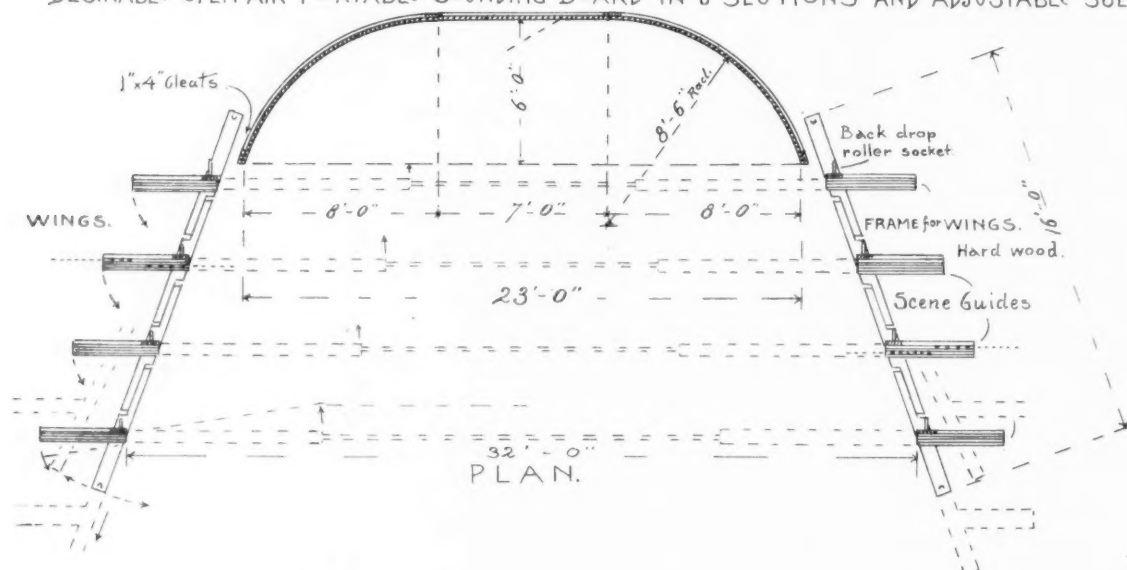
The events at which such a stage can be utilized are many. Picnics, band concerts, conventions, lyceums, chautauquas, holiday celebrations and sporting meets are a few of the opportunities. In addition

many different locations that are resorted to, make a cheap affair, of rough board only, the best that is usually provided. This is often octagon shaped, with rough boards and a leaky roof. They are seldom less than 20 feet wide by 12 feet high and 6 feet in depth.

The wideawake carpenter who will build a portable sounding board is sure to have an article that will be in demand. He can deliver it for rental anywhere that it is desired, and thus secure a constant source



DESIRABLE OPEN AIR PORTABLE SOUNDING BOARD IN 6 SECTIONS AND ADJUSTABLE SCENERY FRAME.



there are garden and waterside resorts where they would be much more appreciated than the numerous side shows and freak attractions that are devised. A sounding board encourages a good class of performances, therein serving both those who wish to be entertained and the entertainers.

The temporary nature of outdoor meetings, and the

of income for very little trouble after it is once built.

The accompanying design is for a neat and light article to fill this need. It is 23 feet wide by 15 feet high, made of about 400 feet of flooring, hoops and narrow strips for the upper corners. The perpendicular height is just enough to admit making a door in the back if desired. In fact, all the dimensions are

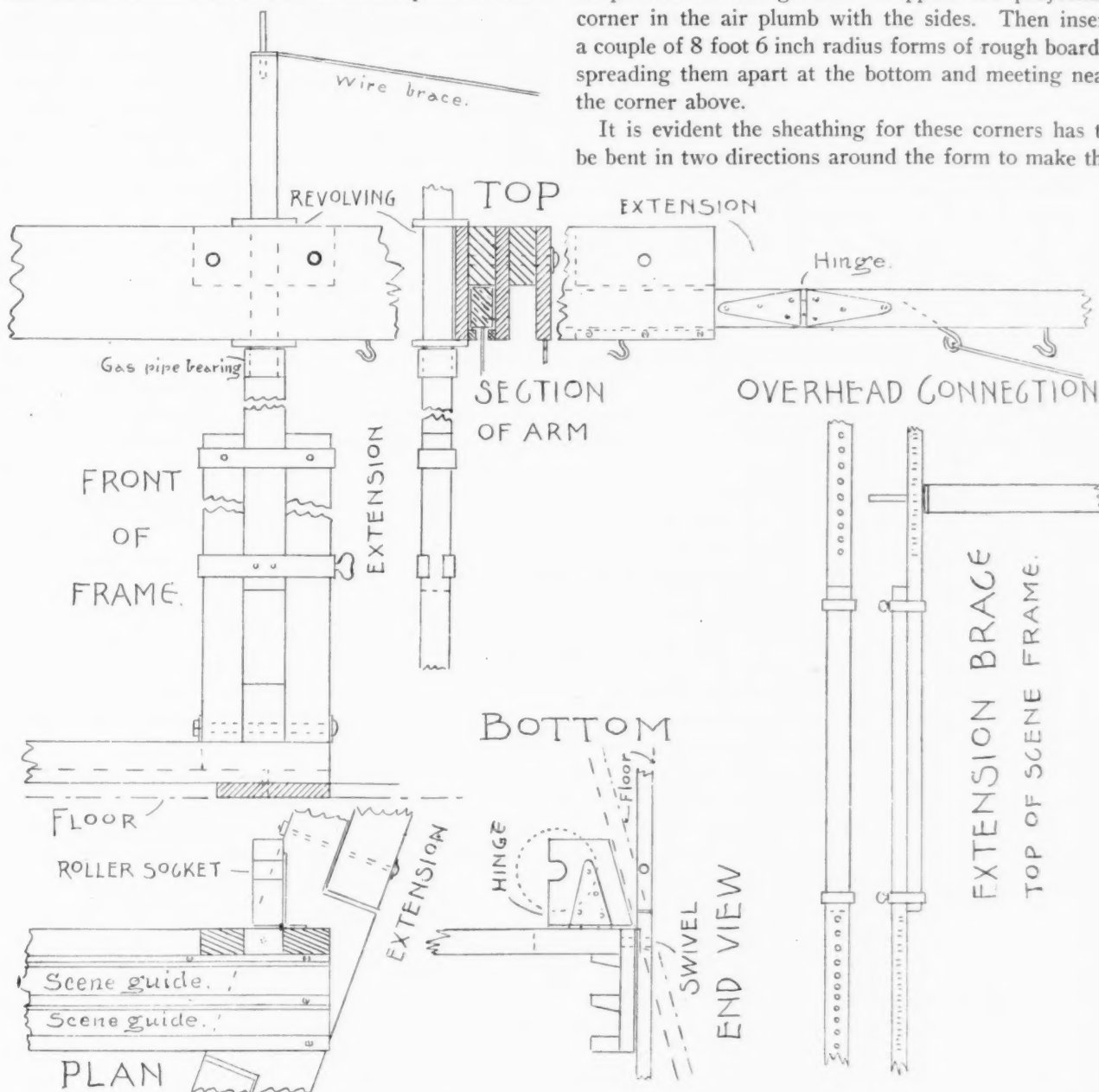
chosen with a view to the greatest convenience and economy for constructing a neat and useful article.

First make a temporary form around which to bend the hoops. It should be 17 feet in diameter. Then bend $\frac{1}{2}$ by 6 inch pieces of any handy length around it. A nail or two will hold the pieces in place. Upon this, and lapping the joints, nail a second layer of the same material. Wet the wood if necessary. Take this off the frame and build another hoop in the same

marked. The quick result is three panels and four segment ribs for the sounding board.

The radius of the upper front corner will be 6 inches less than the other curves. For this, half a hoop will have to be made and quartered. One of these, with two of the first hoops, make the frame for one of the corner hoods. Lap the corners by cutting away half the thickness. Set the small quarter circle hoop level on the ground. Support the projecting corner in the air plumb with the sides. Then insert a couple of 8 foot 6 inch radius forms of rough boards, spreading them apart at the bottom and meeting near the corner above.

It is evident the sheathing for these corners has to be bent in two directions around the form to make the



way. Then place the first hoop on top of the second hoop, as it lies around the form, and elevate it in the air 7 feet high, measuring from the outside of both hoops. Three or four braces will keep it in place.

Now measure off five equal parts around the inside of the hoop and drive a spike in to mark the places. Then take the flooring, which should be ordered in 7 foot lengths, and blind nail it, up and down, between the spikes, making three panels. Now withdraw the spikes and saw through both hoops at the place

cove, in other words, twisted on. It is easily done with narrow slats about $\frac{7}{8}$ by 1 inch. Begin at the bottom, bending them around the quarter circle and nailing the ends to the segment rib. These nails must be clinched.

Stretch wires across all the curves to keep them from springing back while handling.

The flat panel may have an invisible door in it of the same material.

When the six sections are completed fit them in

place. Now cover the joints on the back with a strip of the $\frac{1}{2}$ inch stuff, nailing to one side of the lap only. It should be fastened with hooks. The structure will then come apart or fit together securely and with ease.

There is always complaint about the waste of material and loss of time in building curved work. Follow these directions and there will hardly be a block left over, nor will it take any longer to make than the usual shed-like affair with its cutting and fitting and big scrap heap at the finish.

A nice sounding board opens the way for other improvements of a similar nature. Some grooves at the sides for scenery wings will make a complete stage outfit of the most approved pattern. Let people know that you can do this for them and see how they will welcome your work. The stage is the most important instrument for training a person there is. The expense of halls limits its use; but such a cheap and pleasant arrangement as here shown makes it available for many purposes and occasions. An expensive theater equipment with a few slats! But they are ingeniously contrived.

This scenery frame can be made any width of proscenium opening, also any height. It will fit any incline of stage floor and the wings may be adjusted to any angle, even flat-wise for interior scenes. By reference to the details it may be seen how this is.

There will be a few bolts and iron straps and washers necessary. The bearing under the guide overhead should be a small piece of gas pipe, and a strap that works around the top of the pole. There is also a little metal foot plate in which to step the bottom of the standard pole. The foot board may be adjusted to any depth of stage. The standard slides to fit any height. The connection overhead fits any width or angle in a similar manner. Some wire will be needed for bracing and hooks at connections to hold together.

If the lower sections of the sounding board are painted a light gray and the upper sections light blue it will fit most any combination of scenery. It must, of course, be painted both sides to keep the wood dry. The segment shaped sides are a little different from that usually adopted. The flat center and wide angled edges will help the acoustics.

If there is not more attention given to the acoustics of city auditoriums, to roominess and accessibility, there will soon be better facilities on the country hill-sides. An enterprising person is not limited by being located at a distance from congested centers. On the contrary, it is in just such remote places that the greatest possibilities are waiting for development.

In introducing an article study the advantages it affords those who use it in order to impress it upon people who would otherwise be unacquainted with their opportunity.

The Cesspool and Its Dangers

VITAL FACTS CONCERNING THE DISPOSAL OF SEWAGE—PAPER READ BEFORE THE AMERICAN SOCIETY OF INSPECTORS OF PLUMBING AND SANITARY ENGINEERS

By Burton J. Ashley, C. E.

DURING last year I received a letter from a prominent clubman of the northwest, who wrote: "Our cesspools (three largest built locally) won't 'cess,' and have been useless and impossible for the past four years," to which we made the reply that the greatest trouble people find with cesspools, in our experience, is that they *do* "cess." A cesspool, derived from the words "cease," is a "cease" pool, that is, it is a quitter; it ceases and won't do anything. It may, and does, put forth a strangled effort, but Nature's forces become so stultified in these ill-designed contrivances that the active natural agents of purification are completely smothered and die, and thereby the ceasing and consequent danger.

You may as well expect the average cesspool to be successful in disposing of your sewage as to expect a fire to burn in the bottom of a hole in the ground with the top of the hole covered.

The *Saturday Evening Post* recently gave the Merchants' Association Committee on Pollution of the State Waters, of New York, permission to reprint some articles for general distribution regarding the cause and spread of typhoid fever, and contained in them may be found the following:

"Great cities are developing some sort of a sanitary conscience. Farmers and country districts have

as yet little or none. Bad as our city water often is, and defective as our systems of sewage, they cannot for a moment compare in deadliness with that most unheavenly pair of twins, the shallow well and the vault privy. A more ingenious combination for the dissemination of typhoid than this precious couple could hardly have been devised. The innocent householder sallies forth, and, at an appropriate distance from his cot he digs two holes, one about thirty feet deep, the other about four. Into the shallower one he throws his excreta, while upon the surface of the ground he flings abroad his household waste from the back stoop. The gentle rain from heaven washes these various products down into the soil and percolates gradually into the deeper hole. When the interesting solution has accumulated to a sufficient depth, it is drawn up by the old oaken bucket or modern pump, and drunk. Is it any wonder that in this progressive and highly civilized country three hundred and fifty thousand cases of typhoid occur every year, with a death penalty of 10 per cent?"

I recently asked a wealthy manufacturer how he disposed of the sewage of his summer home at one of the lakes in northern Michigan. "Oh," said he, "I dig a cesspool down to the gravel and then the stuff runs away." "Where is your well?" said I.

"About one hundred feet away," was the answer, and then he proceeded to explain to me, in an assuring way, that the bowel discharges and sink wastes that went into his cesspool would be entirely purified by passing through the strata of fine gravel before reaching the well. Now this man I know to be a gentleman of splendid intelligence, the mayor of a city and a leading light in his community, but, in spite of his intelligence, he was totally ignorant of what the essential processes are that produce sewage purification. He evidently had in mind that the substrata of gravel would filter the cesspool seepage to purity. He did not know that purification of such foul liquid is impossible without fresh air and the action of aerobes. And here lies the danger, that the common people, and even the most intelligent people, are led astray sometimes through lines of their own incorrect reasoning, and sometimes through erroneous information imparted by pretenders that know nothing of the principles of decay, but try to make folks think they do.

Mason says that it is hopeless to depend upon the purifying influence of the intervening soil to protect the wells from privy and cesspool fouling, because soil filtration, in order to be effective, must be intermittent. With a constant flow of pollution on or through any soils, the purifying powers of the soil quickly cease to act. Intermittent flow is absolutely essential to admit air to the aerobic bacteria where present if purification is to be effected.

Rideal, the well-known English authority on sanitation, has pretty well described the results of harboring a cesspool. He says, and it is reasonable to believe, that the soil about cesspools becomes water logged with black foetid matter which undergoes little or no oxidation. I here wish to add that without oxidation of the seepage of cesspools, saying nothing of the liquids of the septic tank, purification of sewage is not accomplished.

Dr. Frank E. Adams, of Piqua, Ohio, has the following to say in the *Ohio Sanitary Bulletin*: "In our own city we have found traces of discoloration, when excavating for cellars, that were traced to old cesspools one hundred feet away, and no telling how far beyond the excavation the discoloration extended.

"The city engineer tells me that when excavating for a sewer they passed through a discoloration in the soil that extended forty feet in width, the odor arising from it almost compelling the laborers to cease working. He said they were about nine feet deep and had passed through one foot of this stuff; how much deeper it extended he did not know, as they were then at the sewer bottom, nor did he know the length of it, but that there was no cesspool nearer than forty feet."

While in Madison, S. D., last summer, a remarkable instance of the dangerous availability of a cesspool as a death trap, was related to me.

The filth hole in question was some four or five

feet in diameter, and about ten or fifteen feet deep, reaching a gravel bed, which was supposed to absorb the filth, but did not, and this death trap was full of unfermented human excrement and other foul matters, covered with boards and earth. As a child of the proprietor was passing above and upon the top of it, the top gave way and the child sank into the filth, up to her arms. Screaming and sinking, she was only rescued in just time to save her life, and just as her head and chin were reaching the surface of the corruption. We leave you the mental picture to contemplate.

Many cesspools are similarly covered with boards and earth on which the grass soon grows, and the location is forgotten. It doesn't take a very great stretch of imagination to realize the direful result which might be caused by such improper construction, which could be directly contributory to the loss of life by accident.

A letter was recently submitted to the writer by a well-known publication on sanitation, which, in part, read as follows:

"Will you let me know what is the best way in which to drain the surplus water from a cesspool. As matters now stand, we are compelled to haul this waste out of town, at an expense of about \$15.00 per month."

A part of our reply was as follows:

"If your cesspool is costing you \$15.00 per month to maintain, then the yearly cost would be \$180.00, which is 6 per cent on a capital of \$3,000. An individual sewage disposal plant should certainly cost you much less than \$3,000, in fact, the average price of plants for ordinary dwellings will only range from \$200 to \$500." I offer this illustration to show the maintenance of a cesspool from the financial viewpoint.

Typhoid fever decreases in proportion to the increased installation of means of sanitary sewage disposal, and in cities it is in proportion to the increased abandonment of wells as a source of supply of drinking water.

Lawrence, Mass., typhoid death rate in 1890, per 100,000, was above 120, but after employing modern sanitary measures in sewage disposal and water supply, in seven years the typhoid death rate fell to but sixteen, a falling off at the rate of 104 deaths per year. The contemplation of the satisfactory effects of employing accepted sanitary expedients is rapidly arousing intelligent communities to the necessity of cleanliness of person, and the sanitation of surroundings. Hence the introduction of modern devices for cleanliness, such as baths, lavatories and laundries in the modern home, with a rational safe, sanitary and satisfying means of purifying the poisonous wastes of living and properly disposing of them, is on a speedy increase. The sanitary conscience is arousing.

Back to Nature is the present cry of city dwellers, and the city dweller who can afford a country home,

even though inexpensive, is moving or laboring to the end of moving to the suburbs or to the country and its loveliness and quiet, and the number is legion. Many thousands of New Yorkers now have their country homes in suburban localities. Thousands upon thousands more spend the greater part of the warm season in country homes in the Berkshire Hills, the Adirondacks or the White Mountains, and yet thousands of others, from all the principal cities of the east and south and great middle west are joining in this one grand determined happy exodus back to the country that God made, and away from the cities which man made, but though back to the country, some of the conveniences of city life are too comforting to be left behind. To resort to Mosaic sanitation (Deuteronomy 13:23) or to dig cesspools as the Indians do, is quite out of keeping with the character of sanitary conveniences some of these would-be country dwellers are used to, and so they are sufficiently wise to employ modern sanitation in these country homes that there also they may have the modern comforts common to the better grade of city dwellers. To the discerning the cesspool is *tabu*.

We have read somewhere about a "septic cesspool." One of the words, "septic," signifies *action*, and the other word "cesspool," from the nature of its derivation, stands for *inaction*. The logical definition of these two words conjointly used, therefore, would be "active inaction." The absurdity of such a claim is apparent.

I recently read a short article by some writer who did not sign his name that the secret of the septic tank was nothing more than that it must be air-tight and have a submerged inlet and a submerged outlet, "and that is all there is to it." Just how can this information be harmonized with the fact that for the last ten years or more scores of septic tanks have been built without any cover whatever, and that chemical analysis has shown that the effluent from the open tank is as satisfactory as that from the closed.

I also saw a published statement that tanks for residences would rarely need to be larger than to hold 24 to 36 hours' flow and that a tank three feet wide by six feet deep, and eight or ten feet long, would ordinarily be large enough. I have computed and find such a tank to contain 1,300 gallons, which clearly shows the most lamentable ignorance on the part of the writer of the amount of sewage ordinarily produced by private residences.

Great care should be exercised in giving out such flat statements as these, for those who are not posted on the subject would surely be led seriously away from the truth, and would more than likely construct something that would be an utter failure.

One has to select a sewage disposal plant for his home in just the same way he would buy a heating plant. Proper capacity is one of the fundamental elements to successful operation. A party in Ohio once wrote me that if he could not get a sewage

disposal plant for his home that would take care of the sewage of fifteen persons as readily as for two he did not want anything to do with it. I replied, asking him if he would expect a stove that was gauged to burn satisfactorily two scuttles full of coal per day to burn fifteen scuttles of coal with the same satisfactory results. This comparison should be convincing, for sewage disposal plants and stoves are strikingly analogous in their operation.

The laity has been wrongly led to believe that the septic tank purifies sewage. This is positively untrue. The septic tank, settling or reduction tanks, are only a primary means to the end of purifying sewage, the real purification being effected by nitrification or oxidation, which process is accomplished only by bringing sewage or tank liquids into contact with surfaces covered with the aerobic film, and in which the aerobes are kept in active condition by intermittent application of organic wastes and with air.

There are occasional examples where cesspools seem to answer the requirements merely of disposal, but exceptions cannot be held up as an example to follow. Moreover, when a cesspool is able to liquefy the solids that enter it, then it is no longer a cesspool, but a septic tank or hydrolitic tank. But liquefaction in a septic tank is not purification, and moreover, when sewage becomes overseptitized purification will not take place. It is entirely possible to convert and purify sewage without the tank processes whatever, employing nitrifying bacteria to do all the work. By this means putrefaction does not take place nor is any fermentative odor produced.

A prominent physician of one of the Southern States remarked in a recent letter that he did not see the difference between turning sewage loose in the soil and nitrification. I answer that turning it loose into and four feet deep, say, beneath the surface of the soil would be a mighty difference, since nitrifying bacteria do not exist in sufficient numbers at such a depth to be satisfactorily effective. The depth beneath the surface of the ground, where uncovered sewage may be applied, has everything to do with the degree of nitrification that can be accomplished. Applying organic substance to the very surface of the soil for nitrification can hardly be improved upon.

The filter bed, the underground nitrification duct or nitrification bed, has, therefore, the object of producing the same final processes of purification as are so readily produced at the surface of the soil, and where quantities of sewage are not too large and the character and condition of the soil, water supply and a number of other essential items fully understood, plants may be so designed for such known conditions as to successfully purify the sewage and then admit of the absorption of the filtrate or water into the soil. By this rational modern sanitary expedient the dweller is safe from the sorrow and desolation that may be caused by harboring that which sanitists universally condemn—the cesspool.



The Design and Use of Interior Finish

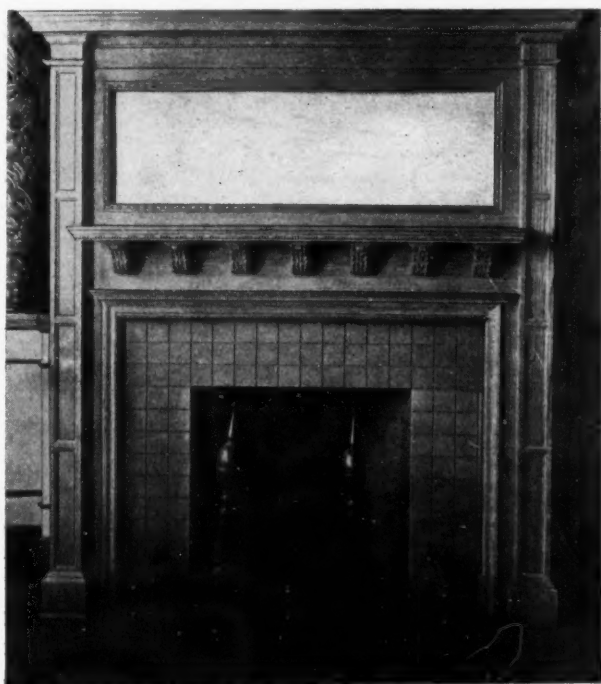
CHANGES AND DEVELOPMENTS IN THE STYLES OF MILLWORK FINISH—VALUABLE SUGGESTIONS CONCERNING THE DESIGN OF SPECIAL DETAILS

ONE'S ideas become limited unless refreshed constantly from outside sources. Very little that is above the commonplace can be accomplished in designing new patterns for inside finish unless reference is had to the sources of the present fashion.

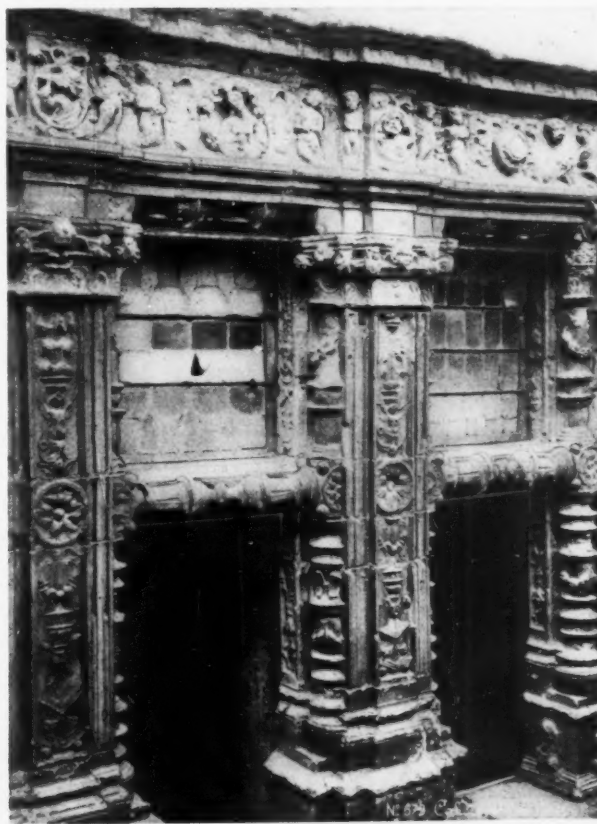
The older woodworkers can recollect when corner block finish was the proper thing. It was easy to cut and fit at the building. The doors and windows would be all kinds of heights and widths. This was in obedience to the ideas of proportion which were derived from classic Greek samples. Even the width of the base board varied according to the height of the stories. One inch of base to each foot of story was the hard and fast rule. But now, uniformity in sizes is aimed at, especially in heights. Machine methods and the introduction of continuous moldings brought about the change. Continuous moldings were at first mitered around so many corners they were called "wild cat" moldings. Now, however, rooms

are considered as a whole and a neat and more elegant appearance is secured with corresponding heights.

Of all the architectural styles the square, lintel method of the Greeks is most easily adapted to the modern requirements of interior finish, otherwise it would probably not be able to hold its own. To this



Application of Classic Detail in Modern Millwork



Fine Window Details—Chateau at Cohors

style the Romans added the molded arch, which is still the model when it is desirable to incorporate curves in good work. The revival of this style in Italy and its further elaboration is referred to as the Italian Renaissance.

In modeling one's work from the accomplishments of others it is wise to acknowledge one's indebtedness to them. The Italian artists not only labored to present the world with work of the greatest refinement,



Details—French Renaissance

but the Italian people exercise constant care and trouble to keep their examples presentable and available for reference, for all of which it is natural they should receive credit.

A few generations ago the French took up the Renaissance and developed some very profuse types. Thereafter our forefathers, in seeking to refine their



Carved Ornaments of Unusual Grace

colonial carpentry work, resorted to some books of the Greek styles for ideas. The result of their work in New England and the Southern states is known as Old Colonial. From the continuation of this latter movement we have cultivated the present taste for classic forms, and have discovered to what extent they are suitable.

The base, pilaster, frieze and cornice details are quite the same, whether applied to door and window casings, side boards, mantels or hall paneling. A general idea of good work can be secured from the accompanying mantel illustration.

Many devices have been put forward for the purpose of overcoming the defects of interior finish, the most troublesome of which was the opening of the



Pendants from Chateau at Chambord

joints, in course of time. It was partly because of the unsightly wedge-shaped crack in the mitered corner that solid corner blocks were introduced. Some builders resorted to iron clamps behind the miter. Then an $1\frac{1}{8}$ inch thick head casing, resting across the ends of a $\frac{7}{8}$ inch side casing was resorted to; $1\frac{1}{8}$ inch base blocks were also necessary to receive the $\frac{7}{8}$ inch base board. Pine was cheap in those days. But, now that hardwood is quite as available, the thicknesses have become $\frac{7}{8}$ inch and $\frac{3}{4}$ inch. Hollowing out the back to insure a firm seat against the wall and grooving it to guard against warping have also been resorted to, but it is now seldom that members of wood work are wide enough to necessitate back channeling. Whereas the base or mop board would formerly sometimes be 10 inches wide

with a cap molding added, it is now often considered of sufficient width at 6 inches without additional members. Instead of countersinking the base a quarter-round corner strip is used. This looks better when $\frac{5}{8}$ by $\frac{7}{8}$ inch instead of being equal sided.

Running the cap molding of base or wainscot continuously around a flat casing is a method that has always given satisfaction for general purposes.

The photographs herewith are examples of Italian Renaissance as introduced in France during the chateau building period. The elaborate windows are from Cohors; the pendants are from Chambord.

The pilaster capitals show what a variety of forms and ideas may be incorporated in these features. We likewise should be representing our own home ideas and local traditions in our details instead of copying devices that represent foreign mythology, which we do not by any means understand. It is sufficient to adhere to the general proportions. The projections and grouping should be within the lines of graceful

failed because they tried to do the classic things demanded by fastidious people. Other plants have lost because they failed to season their output with a little studied refinement. It is therefore evident that our new successes will come from the men who both work and think. Do not be led off into something new by a desire to study, but study your work.



Pilaster Bracket—French Renaissance

curves. When one no longer copies, the need is felt for some reliable principle that shall serve as a guide. There is a law of beauty, but not all the writing nor lecturing in the country can define it. Therefore it is not necessary to strictly follow the shapes of classic moldings in order to attain the highest degree of perfection. Constructive methods exert a good influence even in the decorative use of interior wood work.

In regard to successful business, some mills have

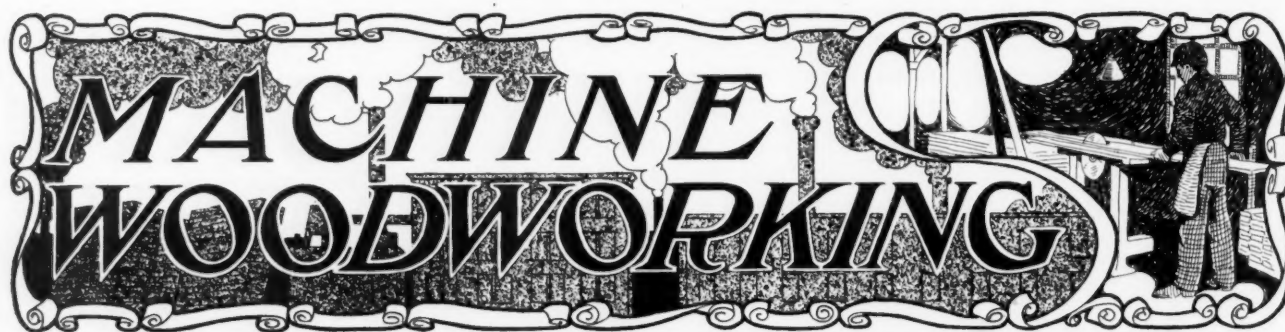


Pilaster Capital of Interesting Design

These are excellent photographs of detail work. While the subjects are stone the designs are equally good for wood. That is rich window trimming from Cohors with carved pilasters and turned, imbedded spindles. Notice how the column shape is retained in the latter, how the transom-piece expresses the strong tie rod. In the capital beneath the medallion-like bracket the gracefully posed youths might be your own children while at play or recreation.

Notice in what different ways the scroll can be made to curl beneath the corner of the entablature. Pendants, similar to these shown, could be made in parts and put together.

Brackets, shelves over doors, curtain poles for rings or drapery festoons and grills add a pleasing variety to interiors. In the latter, which are easily made very elaborate, it is well to introduce an ornamental motive symbolical of its location to dignify it. Harps are usually chosen where music is favored and other devices invented according to circumstances. There is a demand for more sense and meaning in embellishments. Then one can be elaborate with good taste.



Power for the Woodworking Shop

WHAT POWER TO USE AND WHY—THE VARIOUS SYSTEMS COMPARED AND DISCUSSED—SOME GASOLINE ENGINE NOTIONS EXPLODED

By W. D. Graves

TO ONE contemplating the installation of a machine plant the first item of consideration is, of course, the power; and the first consideration about power is to have plenty of it, promptly available. What is best in this line depends very largely upon the locality. Water power is perhaps nearest the ideal, if one has sufficient of it which can be depended upon; but it is rarely indeed that one is so fortunately situated. If one is where he can get that, or where electric power is available at a reasonable price, he need look no farther.

Steam, for small plants, especially where the work is intermittent, is cumbersome, expensive and dangerous. In order to use it, in most states, one must have a duly licensed engineer; who cannot justly be held responsible for accidents unless he is allowed to devote himself solely to his engine, at least while it is running. His hire is a large item of expense for a plant as small as the one apt to be required by any builder. The delay and expense of starting, or the expense of keeping in readiness to start at a moment's notice, which readiness is apt to constitute half the value of a small plant, is another material item. The fire risk, that scourge of all woodworkers, is also more serious with steam power than with any other.

It is probable that, in nine cases out of ten, some form of internal combustion engine will be found the most practicable; and that, in eight of these nine cases, gasoline will be the fuel used. Gas or crude oil is much cheaper in some localities, while kerosene may be more economical in others. Alcohol will be cheaper some day, but it is doubtful if it could successfully compete with any of the others, even in the most favorable localities, as yet.

One should have a "weather eye" toward gas producers; for, while they are yet of doubtful practicability for small and intermittently operated plants, they are shortly destined to become the most economical of all mediums for the conversion of the power in fuel. The time is not far distant (so near is it, in fact, that one scarce dare state that it is not here) when producers will be made to use sawdust and shop waste in a manner practicable for small plants. It is well, therefore, that one should make careful note

of the progress in this line before deciding upon a power for his plant.

Whether the fuel be street gas, natural gas, producer gas, alcohol, gasoline or kerosene or crude oil, the engine is practically the same; so such general comments on the gasoline engine as will enter into this article will apply as well to any of the others.

"Just a word before beginning" as to the special danger of gasoline. The writer feels obliged to take exception to the quite prevalent idea that kerosene and crude oil are much safer. True, gasoline is much more readily inflammable; but, wherever a little of it is spilled, it soon evaporates and leaves no trace. Where oil is spilled, or leaks, it leaves an inflammable place for all time. Very little liquid is handled without some spillage or leakage. If one contemplates investigating his fuel tank with a match or lighted candle he had better use water.

Gasoline, *in itself*, is no more *explosive* than is a block of wood. The *vapor* of gasoline, *mixed with a certain quite definite proportion of air*, is explosive (as is the vapor of wood, or any other combustible substance) and it is the explosion of such a mixture that drives the piston. With reasonable care this explosive mixture need exist nowhere except in the engine cylinder, and, possibly, in the partly emptied tank.

The writer once removed the spark plug from his engine and held a match close to the hole while he looked in; which method of investigation resulted in severe damage to his hirsute ornamentation—nothing else. It is also a matter of record that a Standard Oil employee once thrust his lighted lantern into a gasoline tank to see if it was empty. When he comes down there may be some friendly rivalry between us as to which is entitled to the fool's medal, but it is hoped that there are no others in the same class.

The danger from explosion by any gasoline engine having reasonably intelligent care and usage is negligible. It is as nearly absolutely safe as any fast running mechanism of its size well can be. That men have been injured by them argues nothing to the contrary. Men have been killed by rolling logs; and, but yesterday, one painfully damaged his finger with a common nail hammer.

It is a very common "gag" that gasoline engines are apt to be "notional," and to make trouble without apparent cause. This, doubtless, arises from the fact that, they being the simplest motors made, and requiring least attention, are so often run (?) by inefficient men, who give them no efficient attention. Edison has been charged with having made the remark that a machine ought to be so made that "a jackass can run it"; and a gasoline engine comes about as near that standard of perfection as does any machine. So simple a machine as a crowbar has been accused of moments of perversity, and the writer sees clearly, through the vistas of the past, a flail not only refusing to thresh grain, but doing personal violence to the would-be operator, and eventually driving him out of the barn. Very, very many of the evil moods attributed to gasoline engines may be traced to the operator.

Don't put in a gasoline engine with the idea that it will take care of itself. It won't do that, but there is no prime mover made, unless it may be a water wheel, which will do its work with as little attention. Kept supplied with fuel and lubricating oil, and with proper attention given to keeping the cylinder from overheating, it comes about as near perpetual motion as is possible. Troubles there are, but investigation is very apt to reveal the fact that they are due to slight oversights which may be quickly remedied.

Innumerable amusing stories are told of trouble caused by oversight of slight maladjustments and omissions about gasoline engines. Some of them, like the one of the man who caused an expert to come several hundred miles to tell him that his fuel tank was empty, have been told and retold in so many different forms that they begin to sound a trifle "fishy"; but doubtless most of them have a firm foundation. The writer can vouch for these. He once spent half a day trying to locate the cause of peculiarly freakish action on the part of his engine. When discovered it proved to be that a set screw, in one of the binding posts of the battery, had become loosened. The wire was not pulled out, so it made sufficient contact part of the time; but that contact was interrupted by the jar of the running machinery. A half turn of the screw remedied the difficulty. At another time much mystification was caused by the wearing through of the insulation on a wire where it crossed the corner of a lever on the side of the engine. Once, after several hours spent in going over the adjustments and connections, without being able to start the engine, he put it back, as nearly as he was able, into exactly the same condition it had been in at first. Then, after several unsuccessful attempts to start it, went to dinner. After dinner it started without the slightest trouble, at the first attempt, and ran perfectly forever (?) after. What caused the trouble that time will never be known; but, as it happened in the early days of his experience, it is quite probable that the greater defect was in the operator. We hear

less and less of these ridiculous mishaps as the gasoline engine becomes more familiar.

There are hundreds of makes of gasoline engines on the market, each of which doubtless has its peculiar merits; merits which the manufacturer is always delighted to show up. It is well, by study and comparison of as many different makes as possible, to become as well acquainted as may be with the *demerits*, which they usually do not show up. The only general caution that seems necessary is against getting one of too little power, or of too light build. Weight is rather a good point than a detriment, in a stationary engine; though extreme weight of the running parts adds somewhat to the cost of running.

It seems to be almost the universal custom to get too little power, or to overload that which one has. This tendency should be carefully guarded against, for there is nothing so wearisome as trying to do work with a machine inadequately driven. It costs a little more to get six horsepower out of a ten-horsepower engine than it would to get the same out of a six-horsepower one; but, in case of any slight extra stress, the reserve four horsepower carries one through and avoids a shut down. Of course, it is not well to go to excess in the matter, but a little reserve power is well worth all that it costs. Though this is true regardless of the kind of power used, it is a rule having, perhaps, fewer exceptions in the case of gasoline engines than in that of any other form of power.

A gasoline engine differs from a steam engine in that it cannot practicably be made to deliver more than its rated amount of power. Its power may be increased, it is true, by so changing the governor as to give it greater speed; but this is, for many reasons, impracticable. True, gasoline engines are usually rated at the actual power capable of being delivered (which method of rating makes one of a stated power about 10 per cent stronger than a steam engine of the same nominal power), yet the tests on which such rating is based are, naturally and fairly enough, made under the best of running conditions. As these perfect conditions are rarely attainable in actual practice one dare not reckon on all of the power of his engine being available at all times. Also, without any disparagement to machine manufacturers, it may be said that, when they state the power requirements of their machines, they are pretty apt to state them at less than they will be under ordinary running conditions—for ordinary running conditions are far from the best, and the blame is not theirs, but yours.

If you are going to run several machines at once, or arrange to shift handily from one to another, you must allow quite a percentage of power to run the necessary shafting and idle pulleys—an item of more account than one is apt to realize at first thought.

Many makeshifts there are for avoiding the use of water for cooling the cylinder; yet water is admittedly the best cooling agent. In a stationary plant one may easily keep the water in an underground tank, or cis-

tern, pumping it through the engine, and arrange a vent so that it will run back when the pump stops. In this way the danger of freezing may be entirely eliminated, and practically all trouble, so far as water is concerned, done away with. By having the tank of ample size, and by arranging it so that the rain water from the roof will run into it, one may be assured of an ample supply of the very best water for

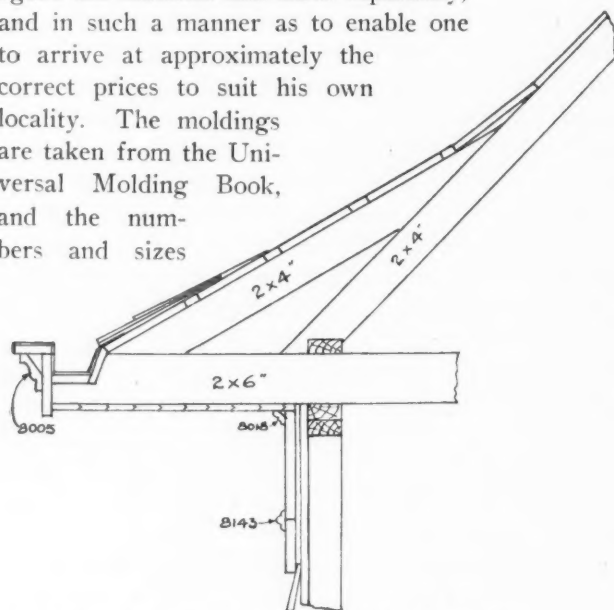
the purpose. As the hard water, so common in many localities, is seriously objectionable on account of the lime deposit it leaves, the use of rain water has much to commend it. Indeed, the writer knows of one engine which had been run with hard water till its passages were seriously clogged with lime, which was thoroughly cleaned out by the use of rain water for a short time.

Estimate and Detail of Modern Cornice

HOW TO FIGURE THE COST FOR LABOR AND MATERIAL PER LINEAL FOOT OF CORNICE—A SATISFACTORY DESIGN PRESENTED

By I. P. Hicks

A LARGE number of houses are now being built with a wide cornice similar to the design here shown; and it is quite important that the carpenter and contractor should know somewhere near the cost of construction in such work. We will figure the material and labor separately, and in such a manner as to enable one to arrive at approximately the correct prices to suit his own locality. The moldings are taken from the Universal Molding Book, and the numbers and sizes



are the same throughout the United States.

It is our aim to figure this by the lineal foot, so that a contractor in estimating can find the lineal feet of cornice the building will require, and then, in a very few minutes, he can find the quantity of each kind of material and what the labor will be worth.

Wages will be figured at 40 cents per hour, as that is about the average.

	Material	Labor
Gutter cap, per lineal foot.....	\$0.01	\$0.01 1/4
Bottom and side pieces.....	.02	.03
Crown mold .....	.02 1/4	.02
Plancher, 9 boards 5/8 by 3/4 inch ceiling .....	.07 1/2	.10
Bed mold .....	.01 3/4	.01 1/4
Frieze, 2 pieces.....	.07 1/4	.05
Band mold .....	.01 1/4	.01
Gutter tin .....	.17	.....
Total	\$0.40	\$0.23 1/2
Total, per lineal foot, material and labor.....	\$0.63 1/2	

Let us see what it will cost now to put a cornice

on a square house, 24 by 30 feet in size, according to the above estimate and the design as shown. The extreme projection of this cornice is 2 feet 9 inches, consequently we have to add for each corner 5 feet 6 inches lineal measure, and for four corners this would make 22 feet; thus, the width and length doubled, plus 22 feet, would make the lineal feet of cornice. For the building in question this would make 130 feet net. Thus 63 1/2 cents multiplied by 130 would give \$82.55, total cost of cornice.

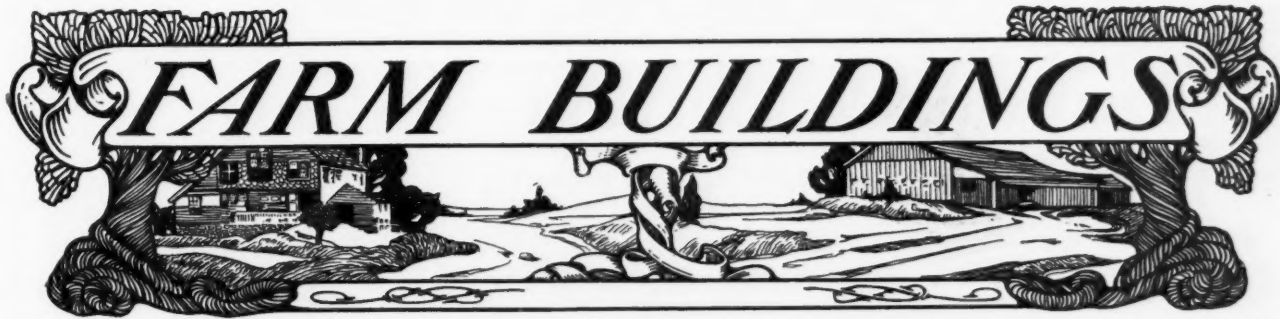
Now, if we want just the labor, multiply 23 1/2 cents by 130, which will give \$30.55. Or, if we want the cost of material, multiply 40 cents by 130, which will give \$52 for material.

The above figures do not include the framing; it is taking the roof, all framed and ready for the cornice. The outside measurement is taken, for if we do not measure this way we will run short on material. The prices given on material are a little strong and just about enough to cover the waste in cutting. But in making out a bill of material for the job about 8 per cent should be added for waste in cutting. For example, it would take just 130 feet of crown mold to just reach around the cornice, if there was no waste; but everybody knows there is some waste in cutting crown molds, hence, 8 per cent added would give us about 10 feet additional, making 140 feet; which is none too much.

With the bed and band mold it is slightly different, for these do not project from the building like the crown mold. Hence, if we add 8 per cent to the net lineal feet around the building we will have plenty. This would make about 9 feet to add to actual measurement around the building, and would be 117 feet.

For the ceiling, take the extreme outer measure and multiply by the width of cornice at the point of ceiling and then add 1/4. This will cover the loss in the matching, and the waste in cutting. As regards the tin work, this is usually figured by the lineal foot for gutters for the material and labor put in. A cornice of the kind just described will take tin 20 inches wide and will cost put in 17 cents per lineal foot.

The figures here given are approximately correct and may serve to assist many in estimating material and labor for a cornice, even though it may differ from the design submitted.

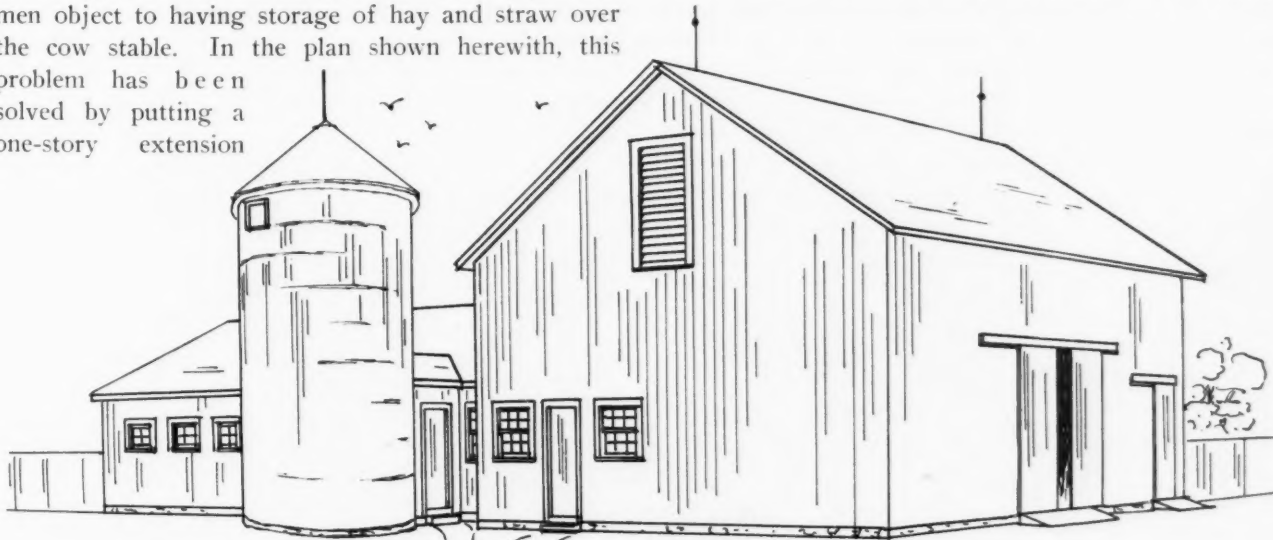


A Well-Planned Dairy Barn

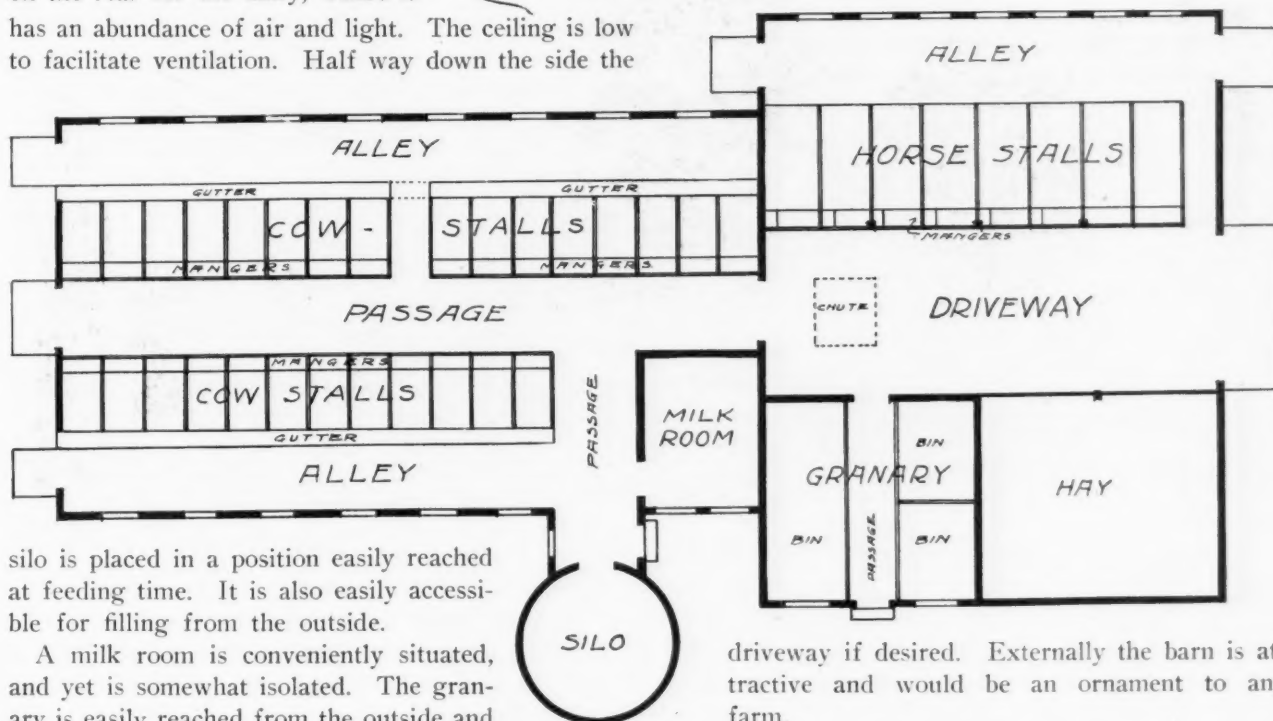
PERSPECTIVE AND FLOOR PLAN OF A CONVENIENTLY ARRANGED GENERAL-PURPOSE DAIRY BARN—DESIRABLE FEATURES POINTED OUT

IN ORDER to keep cows economically, it is necessary that feed and bedding be easily reached; and yet, on account of dirt and dust, many dairy-men object to having storage of hay and straw over the cow stable. In the plan shown herewith, this problem has been solved by putting a one-story extension

also from the inside. Hay is stored over the horse stalls and granary, and from the ground up, in the front corner. Vehicles may be stored in the main



on the rear for the dairy, where it has an abundance of air and light. The ceiling is low to facilitate ventilation. Half way down the side the



silos is placed in a position easily reached at feeding time. It is also easily accessible for filling from the outside.

A milk room is conveniently situated, and yet is somewhat isolated. The granary is easily reached from the outside and

driveway if desired. Externally the barn is attractive and would be an ornament to any farm.



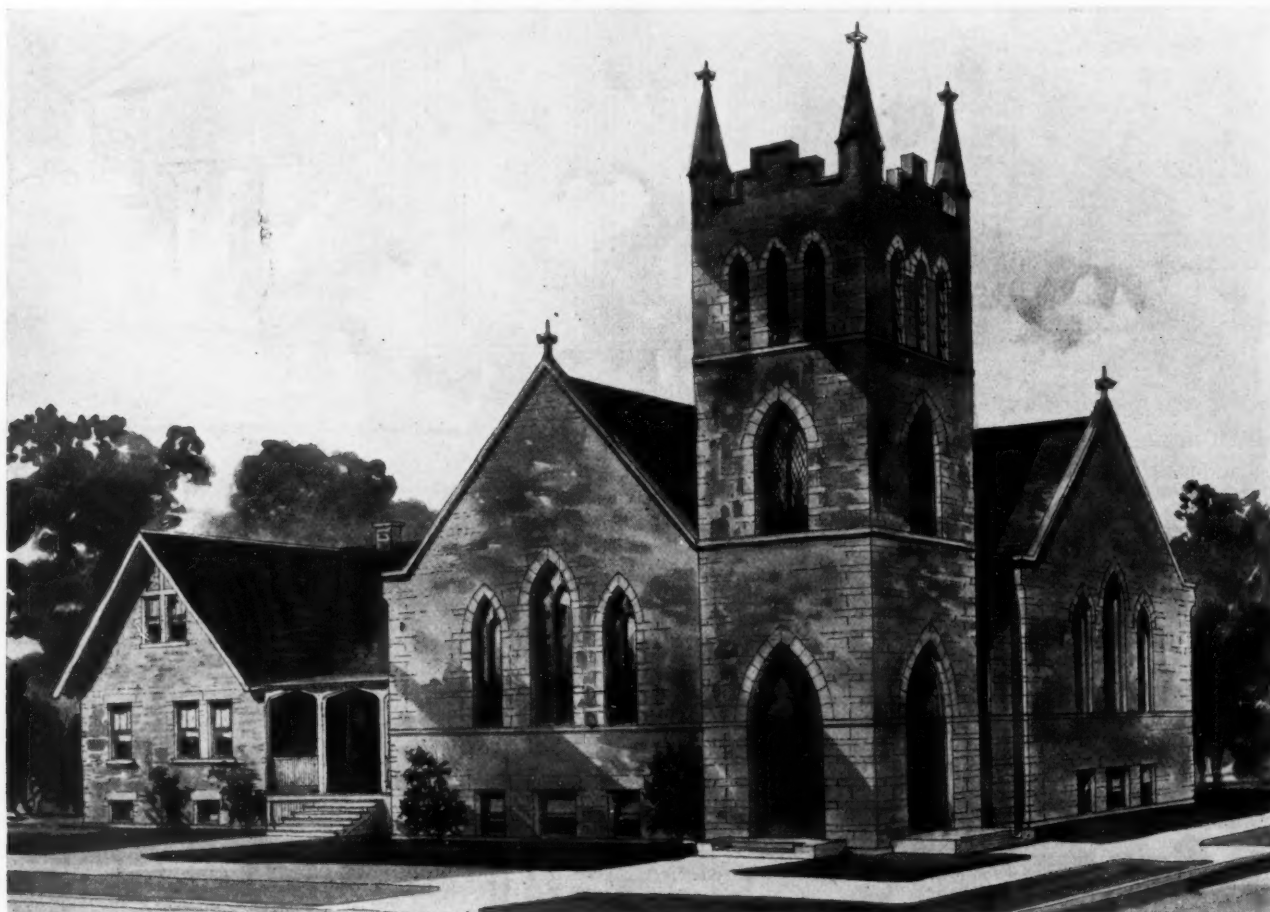
CEMENT BUILDING CONSTRUCTION

Small Church with Parsonage

A VERY ATTRACTIVE DESIGN SHOWING THE USE OF CONCRETE BLOCKS FOR CHURCH BUILDING—EXTRA DESIRABLE ARRANGEMENT OF SPACE

THE possibilities of concrete blocks used with fine architectural effect for public buildings are fully demonstrated in the accompanying design by G. W. Ashby, architect. It is of a small church, especially adapted to the needs of a village or suburban congregation. Two sizes of the blocks are used for the main part of the walls. They are smooth-faced and are laid up with all the care that would be used

a *cheap* material that the cheap idea takes complete possession of them when they start to erect a building of concrete blocks. This is not right. The same care ought to be used in laying blocks as in laying cut stone, and exactly the same care and attention to the interior finish and construction should be given. A saving in cost will be effected to be sure; but that saving should not be made too great, if the structure



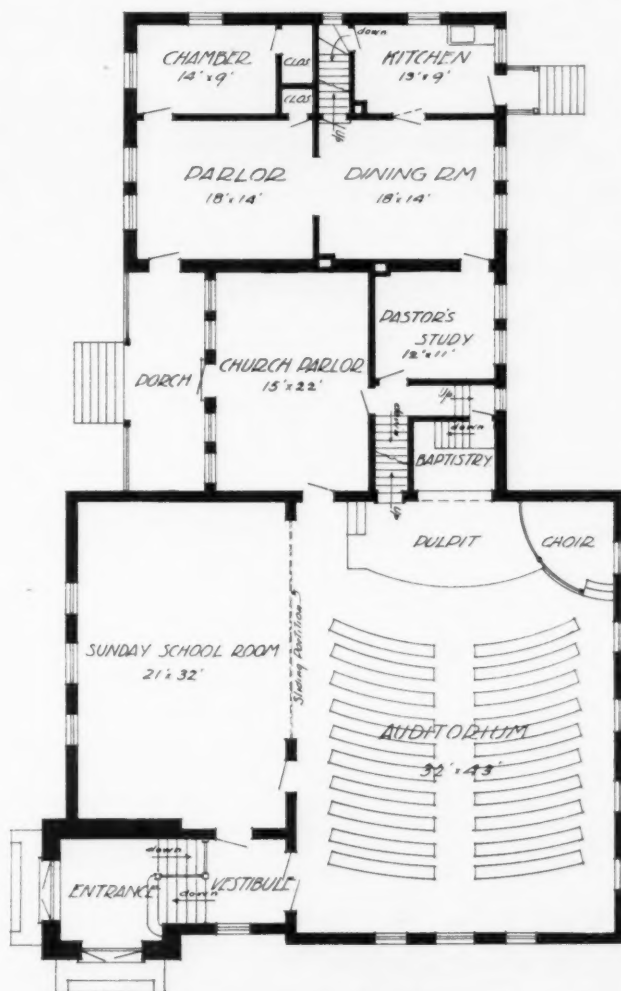
Concrete Blocks Used in Alternate Wide and Narrow Courses for Church Building

on dressed stone. Some have said—and their position seems to be well-taken—that the unprepossessing appearance of much of the work with concrete blocks has been due to the false attitude of builders in regard to it. They have heard blocks preached so much as

is to be lasting and thoroughly satisfactory.

A special feature of this church design is one that will appeal favorably to many congregations, and to many clergymen, the arrangement of the parsonage in close connection with the church. The pastor's

house is always a semi-public place; yet his home deserves privacy at times the same as that of any other man. In this design the home proper is separated

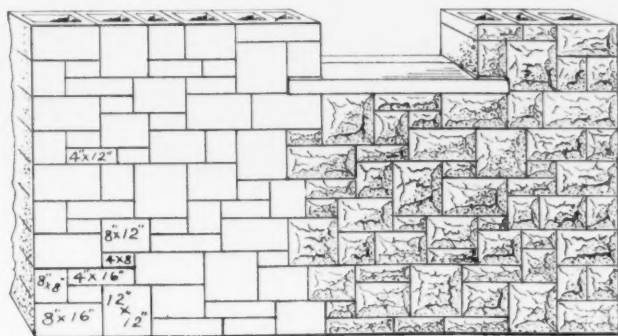


First Floor Plan—Church and Parsonage

from the church by the large church parlor and the pastor's study. The arrangement is particularly convenient, as will be seen from the floor plans.

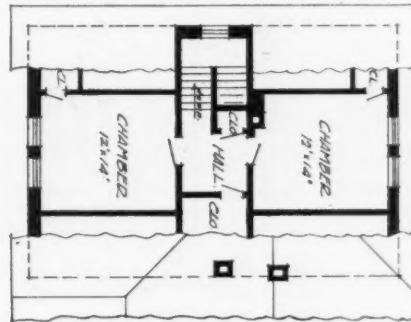
Broken Range Ashlar in Concrete Blocks

Herewith is illustrated a system of broken range ashlar which is very neat for plain surface, and, if used in rock-face work, will greatly improve its appearance.



The block maker who has appliances for making two heights of blocks, one being just half the height of the other, can produce this with but one

additional mold, which is 12 by 12 inches, if used in connection with the four and eight inch high blocks, and 13½ by 13½ inches, if used with 4½ and 9 inch high blocks. The effect is the same in either size.



Second Floor—Parsonage

blocks of both the regular and half regular height and the large special square block. This I make in a home-made wood mold and owing to its compact shape and large size it is more rapidly turned out than is at first supposed.

In laying these blocks in the wall it is not essential to duplicate or repeat the design every sixteenth or twenty-second block as is sometimes required in regular broken range ashlar, in fact I believe the best effect is obtained by a random arrangement, care being taken never to allow a vertical and horizontal mortar joint cross; by noticing the illustration no such error is observed.

For cut stone work there is an old rule that all blocks must lap joints six or more inches. This was properly applied to lime mortar work; but with Portland cement mortar half such lap or bond is sufficient, as it is more than double the strength of lime mortar.

The large number of block machines now in use making six of the seven sized blocks here required will no doubt do much towards producing walls of rock-face and plain concrete blocks that will more favorably impress the public.



Information

"I have often heard," said the inquisitive foreigner, "of your—aw—'race issue.' May I ask what a race issue is?"

"Why, cert. It's any sportin' paper," answered the native.

"Aw—thanks," rejoined the foreigner, jotting it down in his note book.



Why They Moved

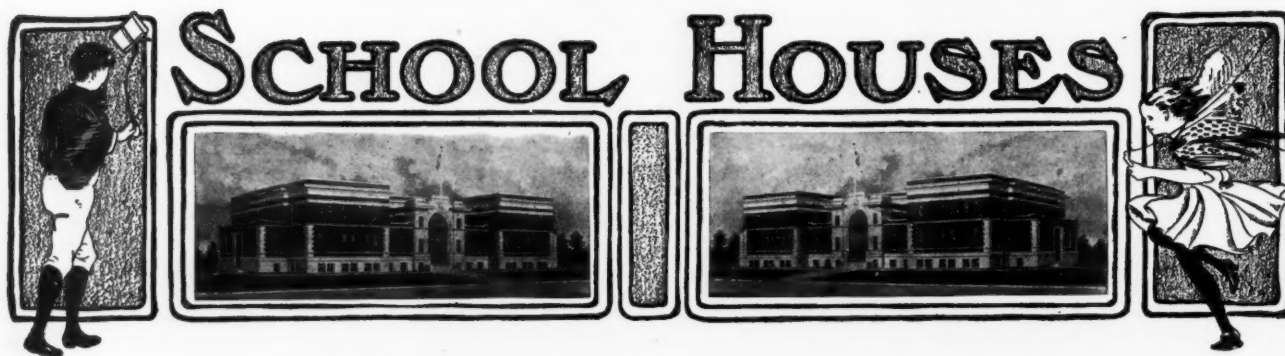
"My wife wants to buy a little dog."

"Yes?" queried the dealer. "What kind?"

The customer looked about anxiously. "Oh, a little one. I'll tell you," he went on, solemnly flapping his hands up and down; "one that wags his tail this way."

"What?"

"We live in a flat. There isn't room for a dog that wags his tail sideways."



A City School of Practical Design

PERSPECTIVE AND FLOOR PLANS OF AN EIGHT-ROOM CITY SCHOOL EMBODYING THE LATEST IDEAS OF ARRANGEMENT AND DESIGN

TO ARRANGE an eight-room school building in the most convenient and economical way to meet the needs of our public school system has been one of the favorite tasks of our architects, especially of those who make something of a specialty of school house designing. The accompanying plans by

on three sides. A special feature is the location of the principal's office, with ante-room, immediately above the front vestibule.

Although the plan is square and simple—which makes it as economical of construction as possible—the exterior appearance of this school is exceptionally



Eight-Room City School—An Attractive and Practical Design

G. W. Ashby, architect, have much to commend them along these lines.

There are four class rooms (of standard size) on each floor, each with a connecting coat room. The corridors are of ample size, and the stairways are arranged to prevent crowding. There are entrance doors

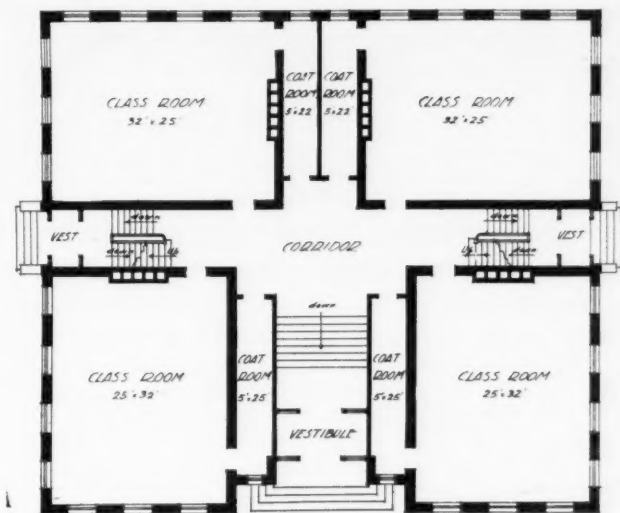
attractive. The design is a modification of the Spanish mission. The material specified is red brick with trimmings of gray stone and slate roof.

+

Quality in Plumbing

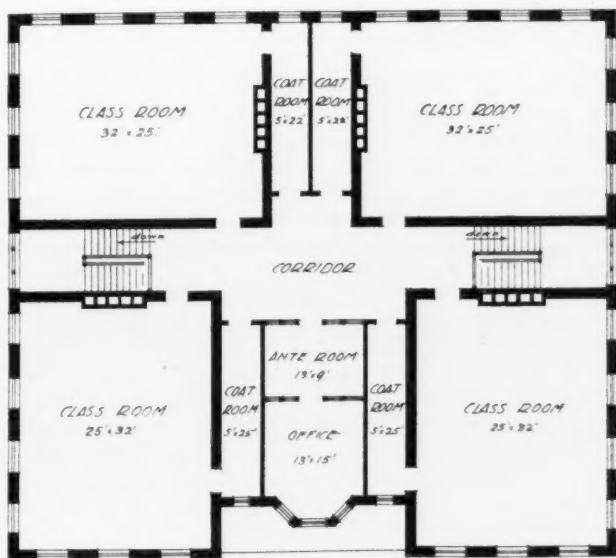
Economy, as applied to the work of the plumber,

cannot be regarded as synonymous with cheapness of cost. Cheap plumbing is always expensive in the end, making necessary continual and expensive repairs, which would have been avoided, had the work been done properly and with proper materials at first. Practical, go-ahead plumbers, who are holding their own



First Floor Plan—City School

in the business, are not liable to adopt new systems, unless their merits have been established by actual tests. The same articles that have been used for years are still being employed, in many cases, although they are looked upon as "old-fashioned," because they are designed in proper proportions in every respect, and not only operate in a satisfactory manner, but have



Second Floor Plan—City School

their parts so arranged that they are capable of giving first-class service, even after they have been used, and "abused," for several years. Some of these old supplies really cost more money than newer ones which have been invented to supplant them, but, in the end, they are the more economical of the two.

One of the methods employed by manufacturers of the new designs of plumbing supplies, to cheapen their

products, has been to make brass goods of excellent design, but which are so scant in real brass that they cannot be regarded as constructions of real merit. The saving of the brass cheapens the product, and makes it attractive to the owner or builder who rates economy only by dollars and cents; but the use of such makeshift supplies always results in eventual loss in dollars and cents. The designs are not strong enough to sustain the strain to which they are subjected, and the result is that they are constantly getting out of order and necessitating a call on the plumber for repairs, which involves the payment of more money.

Heavier brass goods than some which are used efficiently are often properly rejected by the conscientious plumber because they are faulty in design and proportion. There are water-closet combinations on the market which are so faulty in their action that the poor plumber who is so unfortunate as to be attracted by their cheap price will have lots of trouble before he can induce his customers to cease their complaints, if he does not have to substitute some really fine goods when he has a customer who understands how a water closet should operate. Owners who have not learned the difference between good enamel ware and seconds and thirds, are very much at a disadvantage when they have to figure against a plumber who intends using one of the competition tubs, especially when the competition tub does not bear the stamp of its quality upon it.

Owners and builders should always choose the very best in their purchases of plumbers' supplies. The plumbing is in reality the most important part in the construction of a home. If this is faulty, it makes no difference how elegant the design of the building, or how elaborately it is decorated to attract the eye, the structure is a failure, and constant worry and annoyance is waiting for the occupant.

+

Might Have Been "Big Bill"

"It would please me mightily, Miss Stout," said Mr. Mugley, "to have you go to the theater with me this evening."

"Have you secured the seats," asked Miss Vera Stout.

"Oh! come now," he protested; "you're not so heavy as all that."

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Sunken Logs Are Raised

The present price of lumber has again made profitable the raising of sunken timber from the bed of the Neches and Sabine rivers and many men are finding employment at this hazardous work. This old timber, some of it, has been on the river bottom many years and occasionally there is a monster raised that causes the old-timers to smile with satisfaction and crow not a little over the younger men, who have had their doubts of the truth of some of the oft-told stories of the monster logs of the old days.



Roof Trussing and Floor Deadening

To the Editor:

Napoleon, Ohio.

I am going to build a store building 44 feet wide and 100 feet long, the roof to slope from front to rear; roof to be covered with gravel roofing. The building is two stories high, one room on each floor. How would you frame roof without having columns under second story ceiling? Second floor is to be used for skating rink. How would you deaden floor? Joists are to be 2 by 12 inch hard pine.

EDW. M. BURGEL.

Answer: The best way to carry such a roof is by a series

should be laid on the rough floor, then strips of 1 by 2 inches on flat, 12 inches apart, and then the hardwood floor to form the skating surface.

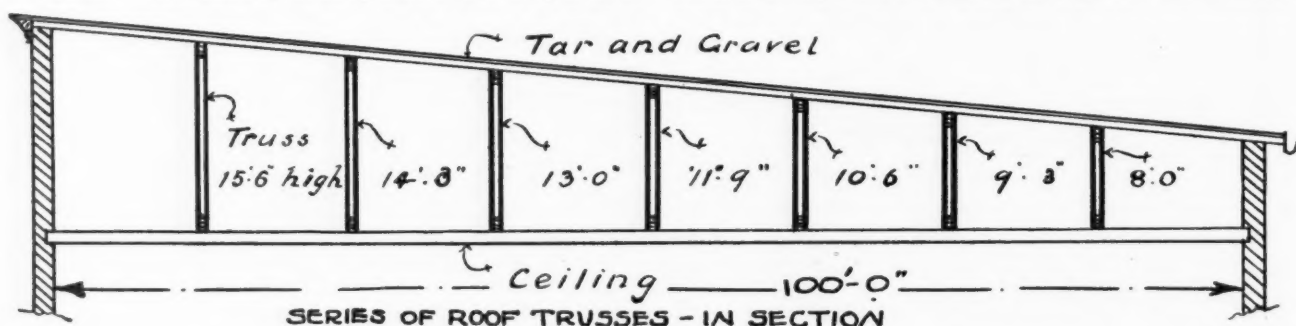
T. B. KIDNER.

To Lay Out a Tight Barn Floor— Suggestions Wanted

To the Editor:

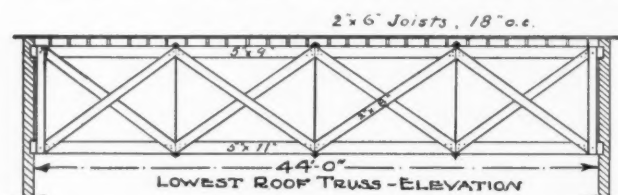
Holley, N. Y.

Will you help me to solve a difficult problem? What is the best way to construct a floor in a horse barn to catch all fluids and keep them from going through into the basement?



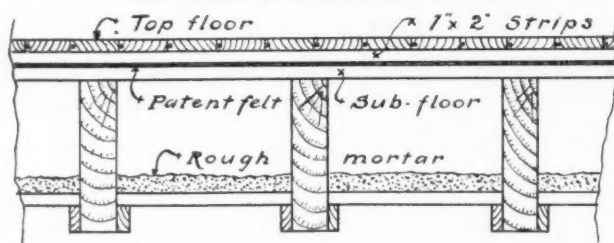
of trusses, as shown in sketch attached. The heights of these trusses vary according to their position, a fall of 1 inch to the foot being allowed for the slope of the roof. The truss shown in elevation is the lowest of the series; but the rest would be similar in all respects.

It is difficult to deaden a floor effectually when used for



such a noisy purpose as roller skating; but we advise a double deadening as best likely to fill the bill. One, as shown, consists of nailing strips near the lower edges of joists to support short lengths of boards, upon which is laid a rough mortar, either of sand and lime, ashes and lime or sawdust

Double deadened floor



and lime. Or you might use one of the special patent compositions, such as slag wool, made for the purpose. The second deadening is applied between the rough floor and the hardwood upper flooring and consists of heavy deadening felt made for the purpose. In the case of a rink, the felt

It has been suggested to lay a tight floor of $\frac{7}{8}$ inch matching, then cover that first with asphalt about $\frac{1}{2}$ or $\frac{3}{4}$ inch, and on that lay a $1\frac{3}{4}$ inch matched floor. Now if you can help me, you will place me under great obligations. A subscriber,

J. F. HOUGHINS.

Answer: The question is one in which the writer has not had practical experience, but the suggestion given in Mr. Houghins' letter seems practical, assuming, of course, that the floor is properly graded, so as to drain to a trough for carrying off fluids. This is a good question, and perhaps some of the many readers can come to the front with practical experience and tell of a better way of constructing the floor.

A. W. WOODS.

Finish for Home Workshop Pieces

To the Editor:

Fulton, Ky.

From your July and December numbers, 1907, I secured some ideas on chair building, and expect to furnish my library or living room with carpenter-made furniture—bookcase, library table, etc. Now I'm writing you for information, and you can answer either by a personal letter or through the journal.

I am making this furniture of quarter-sawed red oak, and wish to finish it in a dark golden oak. Would like to know how to fill it; what filler should be used; how to proportion, apply, etc.; then how to finish. Am desirous of doing this all myself, consequently, write to you for the information.

W. S. GAYLE.

Answer: It is possible for one to make his own stain and filler, but more satisfactory results are obtained if some standard stain and filler is purchased. Asphaltum and turpentine thinned like water makes a golden oak stain. The filler which follows should be darkened with burnt umber and black. If a reddish cast is wanted, use burnt umber and

Venetian red in the proportions of 12 ounces umber, 4 ounces red and 20 pounds light filler. There is no universally accepted standard of color for golden oak.

Directions for applying stain, filler and wax will be found on the cans, so we give here only the general steps to be taken: (1) One coat of golden oak stain. (2) Allow time to dry, then sandpaper lightly with fine sandpaper, No. 00. This is to smooth the grain and to bring up the high-lights by removing the stain from some of the wood. Hold the sandpaper on the finger tips. (3) Apply a second coat of stain, diluted about one-half with water. This will throw the grain into still higher relief, and thus produce a still higher contrast. Apply this coat of stain very sparingly, using a rag. Should this stain raise the grain, again rub lightly with fine sandpaper just enough to smooth. (4) When this has dried, put on a coat of thin shellac. Shellac precedes filling that it may prevent the high-lights—the solid parts of the wood—from being discolored by the stain in the filler, and thus causing a muddy effect. The shellac, being thin, does not interfere with the filler's entering the pores of the wood. (5) Sand lightly with fine paper. (6) Fill with paste filler colored to match the stain. (7) Cover this with a very thin coat of shellac. (8) Apply a very thin coating of wax. Allow this to stand for about five minutes, then polish by rubbing briskly with a flannel cloth. After this coat has stood for twenty-four hours apply another in the same manner.

This is called a wax finish and makes a simple and extremely satisfactory finish for straight-line furniture.

IRA S. GRIFFITH.

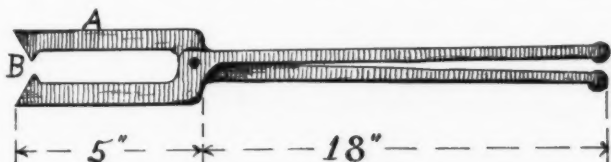
A Floor Jack

To the Editor:

Ft. Supton, Col.

Here is an illustration of a clamp for bringing crooked flooring boards to terms when you are laying them over joists alone; in laying a second or finish floor over a rough one it will be of no value.

It will be noticed that the part of the clamp marked A



which comes against the tongues of the board is flattened out considerably, so as not to crush it.

It should be made so that when the spikes B are driven well into the joist the handles will both be held in one hand, and the other can be used in nailing the board when drawn in place. The closer you put them to the top of the joist, the more leverage you will have. By this method you can bring hard crooked boards up nicely, and nail them there.

This tongs can be made by any good blacksmith, and can be used to a great advantage when you have crooked or warped floors.

THOMAS BRUMENSCHENKEL.

Another Hay Mow Door

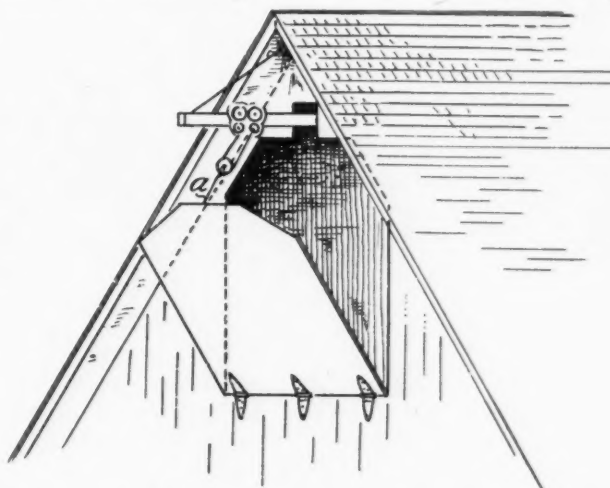
To the Editor:

Chula, Mo.

In your January issue, Bro. H. Landphare asks the best way to hang hay mow doors. For some time I thought to hang the door with weights was the only way, but the last one of that kind I put up two of us worked over an hour trying to get it to work right; finally we made the guides so loose that the door would nearly fall out. It did not work good then. If the wall springs either in or out the door will bind.

The enclosed illustration will give you my plan. The wire

(a) has a hook on the upper end to hook into the pulley, as shown. A pull on the hay-rope will raise the door with ease. The carrier trips the same as with a load of hay.



The door is pulled up close or left open a little for ventilation. Tie the hay-rope any place and it holds the door—being hinged at the bottom, it hangs below the opening out of the way.

GEO. W. HARMAN.

How to Strike an Ellipse

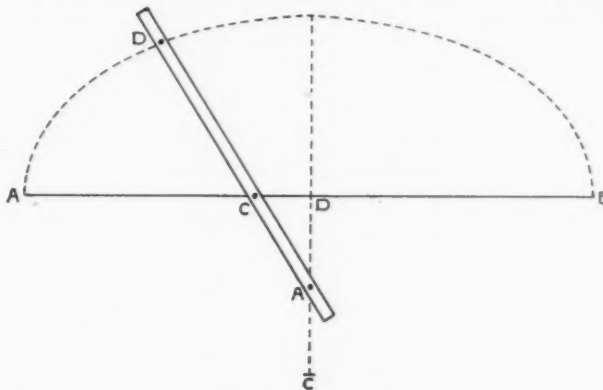
To the Editor:

Youngstown, Ohio.

Would you kindly tell me, with illustrations in your paper, how to strike out an elliptical arch to any radius, and oblige.

R. R. ATKINSON.

Answer: We will suppose the arch to have an opening equal to A B, with the rise equal to C D. Take a straight edge and lay off on it the distances D A and D C. By mov-



ing the straight edge so that the points C and A are on the lines A B and C D, the point D will describe the desired ellipse, as shown by the dotted lines in the illustration. Mill men and others having much of this class of work to do, usually have an instrument called a trammel, for laying out such work. It works on the same principle as here shown. Being an instrument, it is easily adjusted and used in the same manner as a beam compass for circular work.

A. W. WOODS.

A Real "Sticker"

To the Editor:

St. Joe, Mo.

Here is a problem for some of the mathematically inclined brother chips to solve. It isn't new, neither does it apply to carpenter work, except possibly the house part. Most of us are too poor to own a cow. The question is this:

A cow is tied with a 100 foot rope to a corner of a barn, which is 25 feet square. How much ground can the cow graze over?

SAM LIFFINGWELL.

The "Sticker" Solved

Last month Mr. R. L. Ricks, of Worden, Ill., submitted to the brother carpenters, through these columns, a problem in rafter framing, which he says has "stuck" the school teachers. If that is true, all we have to say is—they are not in the same class with the good readers and students of the AMERICAN CARPENTER AND BUILDER! To date the editor has received correct solutions from 48 subscribers!

Our regret is that space does not permit us to publish all the letters. The solutions represent most every branch of mathematics applicable to this problem: arithmetic, algebra and trigonometry. A solution by each method follows:

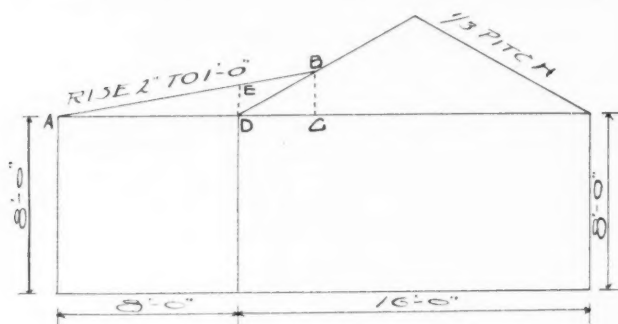
By Arithmetic

To the Editor:

Exira, Iowa.

The following is my way of solving the problem. It can also be solved by geometry or algebra; but I thought the majority of the readers would understand it better if solved by arithmetic. If the shed is 8 feet wide and has a pitch of 2 inches to the foot, then the total rise from D to E would be 16 inches; and, if the main roof is $1/3$ pitch—which is 8 inches to the foot—then for each foot run in from D towards center of building, the main rafter would come 6 inches closer to the shed rafter.

The rise from D to E is 16 inches, and 16 divided by 6



equals $2 \frac{2}{3}$ or 2 feet 8 inches; which will be the distance from D to C, or the run in from edge of main pole to where the two rafters meet. Now, if the run from D to C is $2 \frac{2}{3}$ feet, then the rise at 2 inches to the foot would be $2 \frac{2}{3}$ times 2 inches, equals $5 \frac{1}{3}$ inches. Then $5 \frac{1}{3}$ inches will be the rise from E to B.

Sixteen inches plus $5 \frac{1}{3}$ inches equals $21 \frac{1}{3}$ inches, or the total rise from D to B or C B. Then by using the rule to find hypotenuse of a right-angled triangle ("The hypotenuse of a right-angled triangle is equal to the square root of the sum of the square of the base and altitude.") you have two right-angled triangles, one A C B and D C B; in the first the altitude is $21 \frac{1}{3}$ inches and base 128 inches. By using the above rule the hypotenuse or shed rafter is 129.765-plus inches, or 10 feet, 9.76 inches.

In the other triangle, D C B, the altitude is $21 \frac{1}{3}$ inches, base 32 inches, and hypotenuse or distance from main plate to where shed rafter strikes is 38.458-plus inches, or 3 feet 2.46 inches.

I thought the article on "The Proper Care of Tools," by G. J. Schuster, was good. I always keep a piece of waste saturated with a good light oil in my chests, and every night, as I put my tools away, I wipe them off with the waste; then there is never a lot of dirt and trash in the chests, and the tools are always bright and clean. I think every carpenter should take pride in his tools and work; if he doesn't, I don't think he deserves the name. L. A. PETERMAN.

By Arithmetic

To the Editor:

Bowmansville, N. Y.

In reply to R. L. Ricks' "Sticker" roof problem, would say that the teachers that failed to solve the problem did not

see the similarity of finding the intersection of roofs with such problems as: A and B traveling in the same direction, A traveling at the rate of 6 miles per hour, B traveling at $1 \frac{1}{2}$ miles per hour; how long would it take A to overtake B if they were 8 miles apart?

Solution of roof problem: The run of shed roof being 2 inches rise to 1 foot run, would equal 6 inches run to 1 foot rise; the one-third pitch roof equals $1 \frac{1}{2}$ inch run to 1 inch rise. The gain of shed roof over one-third pitch roof to 1 inch rise would be the difference between 6 inches and $1 \frac{1}{2}$ inches or $4 \frac{1}{2}$ inches. The distance the roofs are apart at plate line is 8 feet, or 96 inches; now, if there is a gain of $4 \frac{1}{2}$ inches of run to every 1 inch of rise, it will require as many inches of rise to gain 96 inches run as $4 \frac{1}{2}$ inches are contained into 96 inches, which equals $21 \frac{1}{3}$ inches rise.

Twenty-one and one-third inches rise equals 128 inches run for shed rafter; now the length of rafter is equal to the square root of the sum of the squares of $21 \frac{1}{3}$ inches rise and 128 inches run, or 129.76-plus inches, the length of shed rafter.

Now the distance up main rafter to point of intersection would equal the square root of the sum of the squares of $21 \frac{1}{3}$ inches rise and (the run equal to $21 \frac{1}{3}$ inches rise at one-third pitch is 32 inches) 32 inches run, which equals 38.45-plus inches, or 3 feet 2.46 inches, distance from plate up main rafter to point of intersection of shed rafter.

I hope I have made myself plain to all interested readers. I also wish to say that I am well pleased with the many good and useful points brought out in your paper, the AMERICAN CARPENTER AND BUILDER. C. E. BEIDLER.

By Algebra

To the Editor:

St. Ansgar, Iowa.

I herewith submit solution of "A Sticker." In order to be able to compute the length of any rafter, it is necessary to know the run as well as the rise. In this case, having given the rise per foot, we find the run of the rafters on the shed in the following manner: By referring to the sketch it will be observed that A C must be the required run. Let x equal the run in feet, then 2x equals the rise, C B, in inches, since the given rise is 2 inches per foot. Also, let x minus 8 equal the run in feet of that part of the main rafters which is below the point of intersection with shed rafters, that is, D C; then 8 (x minus 8) equals the rise in inches (also C B in sketch), since the given rise of these rafters is 8 inches per foot. We now have 8 (x minus 8) equals 2x, from which x equals $10 \frac{2}{3}$ feet, or 128 inches, the required run. Then 2 times $10 \frac{2}{3}$ equals $21 \frac{1}{3}$ inches, the rise at C B.

Now, A C B is a right triangle, of which we have already determined the legs, and of which we are about to find the hypotenuse, A B. Since the square of the hypotenuse of any right triangle equals the sum of the squares of the legs, we have AB^2 equals 128^2 plus $(21 \frac{1}{3})^2$, from which AB equals 129.76 inches, or 10 feet, 9.76 inches.

In like manner, to find distance on main rafter from plate to point of intersection with shed rafters, we first determine the run, which is equal to $10 \frac{2}{3}$ feet minus 8 feet or $2 \frac{2}{3}$ feet (D C on sketch). The rise is the same as in the first case, since both plates are on the same level. Then DB^2 equals 32^2 plus $(21 \frac{1}{3})^2$, from which DB equals 38.46 inches, or 3 feet, 2.46 inches. H. HALVORSON.

By Trigonometry

To the Editor:

Oak Park, Ill.

Allow me to submit a solution to Mr. R. L. Ricks' "Sticker," on page 541 of the February number.

Of course, the easiest solution for such a problem is the graphic or scale solution, but it will be noted that a mathematical solution is wanted and insisted upon.

Statement: In the accompanying figure we have given the side f as 8 feet. We can easily find the values of the angles

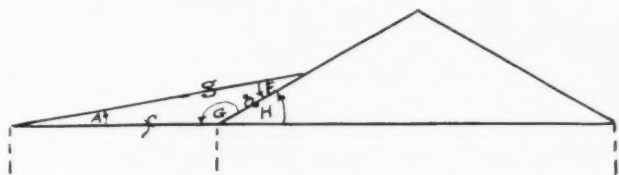
H and A, for we are given the pitch of the roof of main part and of the shed. Knowing the value of the angle H we can find the value of G. With the angles G and A known we can find F. Substituting these values in the following trigonometric formulae, we secure the value of the sides g and a which were desired:

$$g \text{ equals } \frac{f \sin G}{\sin F}$$

$$a \text{ equals } \frac{f \sin A}{\sin F}$$

Solution: Since the pitch of the main roof is $1/3$, the tangent of the angle H equals $2/3$. From the table of Natural Functions we find that the angle whose tangent is $2/3$ is $33^\circ-41'$.

The angle G therefore is 180° less $33^\circ-41'$ equals $146^\circ-19'$.



Since the pitch of the shed roof is 2 inches to the foot, the tangent of A equals $1/6$. This, the table shows, is for an angle of $9^\circ-35'$.

The angle F is 180° less G plus A, or $24^\circ-46'$. Again referring to our tables we find the values of the sines of G, A and F and when we substitute these and the value of the side f in the formulae above we get: g equals 10.81 feet or 10 feet 9.76 inches; a equals 3.17 feet or 3 feet 2.06 inches.

Mr. Ricks' ability to "stick" the teachers was probably due to their not fully understanding the principle of roof pitch, rather than to their lack of mathematical insight.

IRA S. GRIFFITH.

Others to Date

Correct solutions along similar lines were sent in also by:

David Whisler.....	Henning, Ill.
J. W. Trafzer.....	Springfield, Ill.
Fred Scharpf.....	St. Louis, Mo.
J. Slaughter.....	Toronto, Ont.
G. V. Doughty.....	Bay City, Ore.
J. H. White.....	Ansonia, Ohio
Burr Gunsaulus.....	Baldwin, Kan.
Ralph Newcomb.....	Corning, Iowa
J. C. Gordon.....	North Woodstock, N. H.
H. James Bradt.....	Jackson, Mich.
J. E. Mitchell.....	Pittsburg, Pa.
Reed H. Deming.....	New Melford, Ohio
B. P. Tureaud.....	Convent, La.
R. L. Ricks.....	Worden, Ill.
Jas. E. Fraiser.....	Elko, Nev.
H. L. Herr.....	Lancaster, Pa.
Wm. H. Perry.....	Ithaca, N. Y.
Ernest B. Simmons.....	West Fort Meade, Fla.
C. M. Hopkins.....	Postville, N. Y.
F. M. Sherwood.....	Marathon, N. Y.
F. C. D. Andresen.....	Omaha, Neb.
Wilson D. Cool.....	Murdocksville, Pa.
T. J. Pryor.....	Granger, Mo.
P. S. Burgess.....	Plymouth, Mass.
H. M. Young.....	Bernidji, Minn.
Thorwald E. Hanson.....	Lamberton, Minn.
Geo. Heffner.....	East Auburn, Cal.
Peter C. Boddosff.....	Wiconisco, Pa.
Thomas Andrews.....	Hartford, Conn.
Mathew Matical.....	
R. Maddox.....	Santa Cruz, Cal.
John O. Gronwall.....	Minneapolis, Minn.

Arvid Anderson.....	Corvallis, Ore.
F. E. Belden.....	Montrose, Minn.
E. H. Green.....	Bowesmont, N. D.
Leroy G. Gates.....	Philadelphia, Pa.
Theodore H. Smith.....	Richmond, Va.
W. T. Miller.....	North Cohocton, N. Y.
Geo. Grabe.....	Aurora, Neb.
O. E. Whitney.....	Spokane, Wash.
Geo. Lehnert.....	Glenham, S. D.
Werner A. Richter.....	Topeka, Kan.
W. A. Burt.....	Milwaukee, Wis.
C. E. Matteson.....	New Bedford, Mass.



Shingling Valleys without Tin

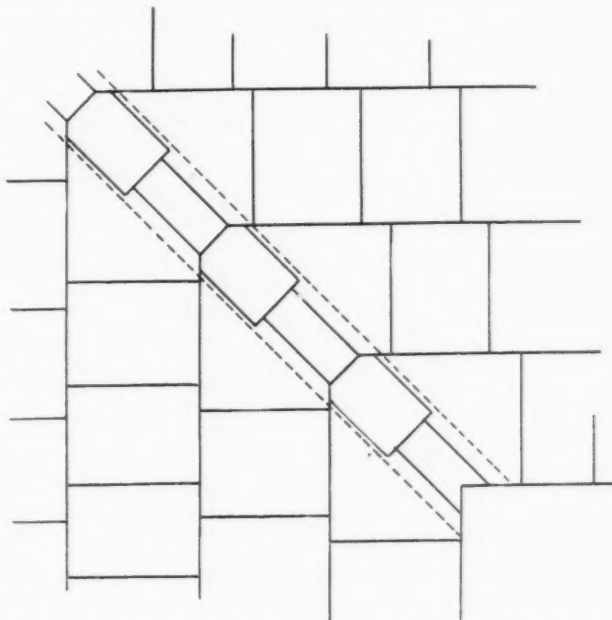
To the Editor:

Mingus, Texas.

I have a question to ask. You may think it simple, but I would like to know. In this country, in shingling, they use tin in all valleys. I would like to know the proper way to shingle one without using tin.

ROBERT KEMP.

Answer: We are at a loss to answer this question, because we have had not had experience in shingling a valley without tin. Neither do we think it practical either from a financial or durability standpoint. As plentiful as tin is, and as cheap as it may be had, we do not think, even if it could be successfully done without tin, that there would be any saving in the cost—because the extra care and work would more



than offset the tin. In questions of this kind, the lasting qualities of both methods should be taken into consideration. However, we herewith reproduce an article on the subject.

"Take a board and bevel the edges so as to fit close to the sheathing boards in the valley, and on this lay shingles, as shown in the illustration. The first course should be doubled, and single thereafter; but the courses should be twice as thick as those on the sides, which should be made to fit close on top of those in the valley alternately."

A. W. Woods.



A Problem

To the Editor:

Enfield, N. H.

Being a subscriber of the AMERICAN CARPENTER AND BUILDER, will take the liberty of asking some of the members a question.

How many feet, board measure, is there in a timber 12 feet long, measuring 12 inches square at one end and 6 inches at the other?

S. W. HAYS.

Subscribers in the West

To the Editor:

Murdo, S. D.

This is a bunch of subscribers from the "Far West"—mechanics in the magic city of Murdo. We all believe that



Murdo is America's destined center of population and wealth. Our war cry is "Spend your money in Murdo!"

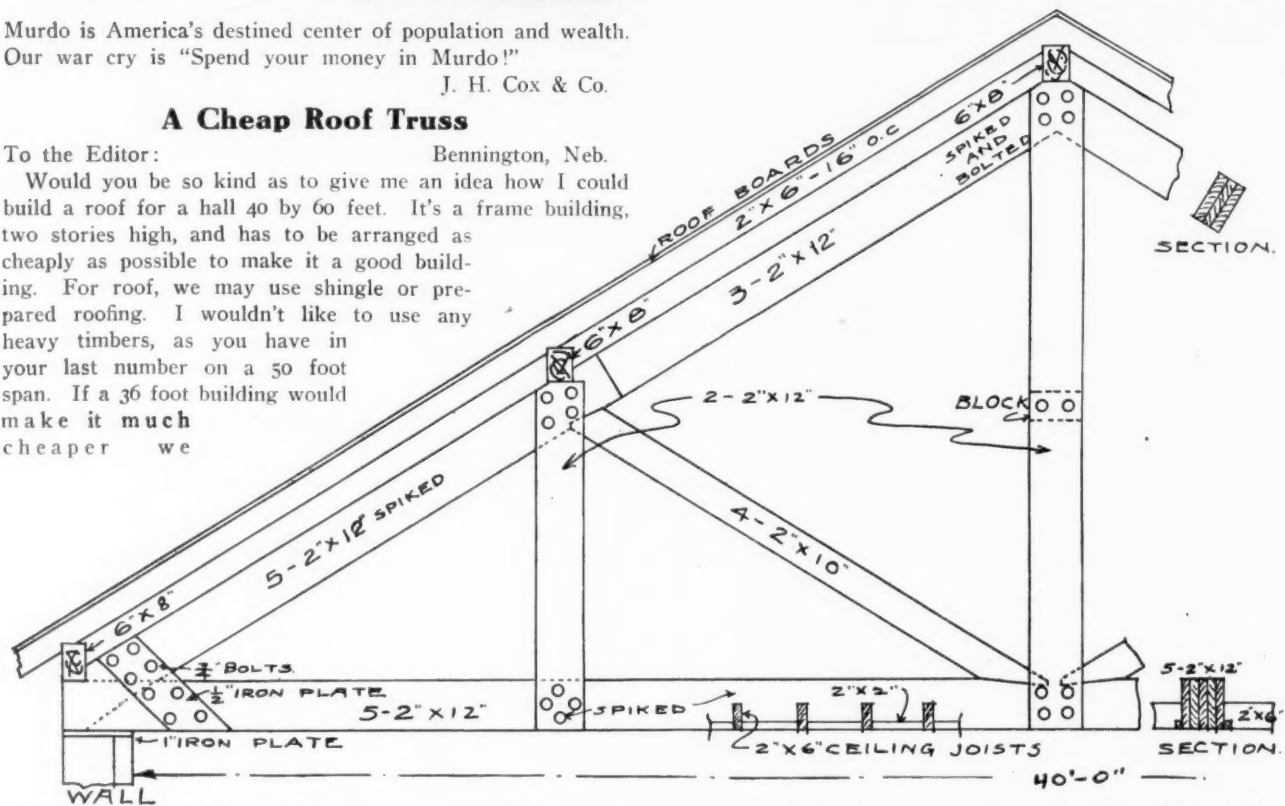
J. H. Cox & Co.

A Cheap Roof Truss

To the Editor:

Bennington, Neb.

Would you be so kind as to give me an idea how I could build a roof for a hall 40 by 60 feet. It's a frame building, two stories high, and has to be arranged as cheaply as possible to make it a good building. For roof, we may use shingle or prepared roofing. I wouldn't like to use any heavy timbers, as you have in your last number on a 50 foot span. If a 36 foot building would make it **much** cheaper we



may make it only 36 feet wide.

C. W. GLANDT.

Answer: The accompanying drawing shows a built-up roof truss of satisfactory, and at the same time of cheap construction, which might answer your purpose. Wind and snow load on a roof of this kind, especially in a Nebraska climate, is a factor that has to be considered. This truss will prove amply safe for a 40 foot span. They should be set in 16 foot bents. The expensive large-dimension timbers are not used, the different members being built up of 2 by 10 and 2 by 12 inch pieces, spiked together to break joints as specified on the drawing.

Other Houses While You Wait

To the Editor:

Oroville, Wash.

I read and have studied the article in your November number, the account of Mr. Carl's achievement in completing the cottage in one day. What kind of paint was used, so that it could receive two coats at least and be dry enough to handle? Of course, a practical painter will say at once that the paint will not wear, but all credit to Mr. Carl.

During the winter of 1882 and 1883, at Moncton, New Brunswick, a man working in the car shops was discharged; he got twenty-four hours' notice to move out of his house. The contractor I was then working for contracted to build him a seven-room house before he had to move. I was one of the gang of carpenters who built that house complete, except paint and plaster, in one day of eight and a half hours, with the mercury standing 5 degrees below zero. This house was lined inside the studding with shiplap and was clothed and papered. The cost was \$1,500.

In May, 1890, I had two rooms rented in Spokane, and wishing to get out of paying rent, I bought a lot (I had a big gang of men working for me at the time). I had a big shop; so I just took my crew at seven in the morning, built a house of six rooms and moved in at 5 p. m. the same day. That building had a cellar, parlor, dining room, kitchen, three bed rooms, pantry and three closets. At night my crew told me that they donated me that day's work. At that time we had no adamant or other quick setting plaster;

and as to painting it two coats in one day, I would not allow it on any work of mine, no matter how quick drying it is. I sold the last-named house and lot for \$2,400.00 shortly afterward. So, aside from the painting and plastering, Mr. Carl is not far ahead of others in that line.

E. McCAMMON.

How to Build a Log House

To the Editor:

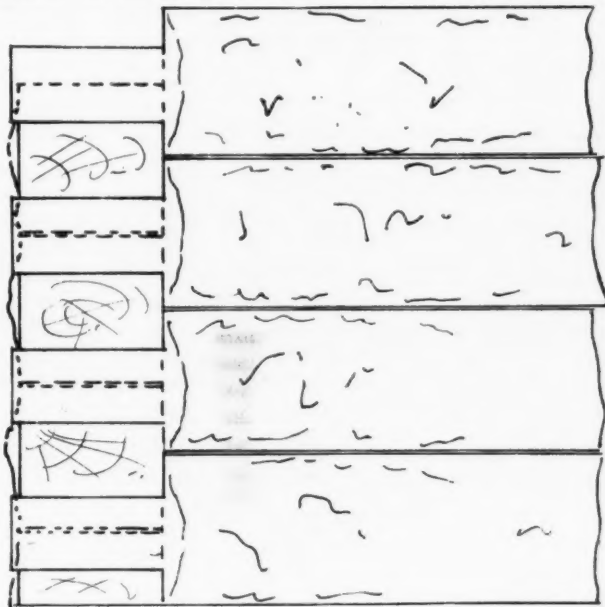
Chicago, Ill.

As I am a subscriber, through my newsdealer, for your magazine, I would like you to show in your next issue the most practical way to build up a log house on a farm, say about three or four rooms. I expect to go to Wisconsin a month from now to take up the work of clearing some land, and will have to build this log house first.

H. PATON.

Answer: In general, the policy to follow in the construction of log houses at the present time shows few departures from the methods used by our grandfathers in the cabins of pioneer days. The logs forming the sides or the partitions

should be flattened on the top and bottom in order that they may fit together smoothly. If a sawmill is convenient, it is best to have the logs run through between parallel saws, sizing them to a uniform width, and if a finished appearance is desired on the inside, the inner side also should be sawed



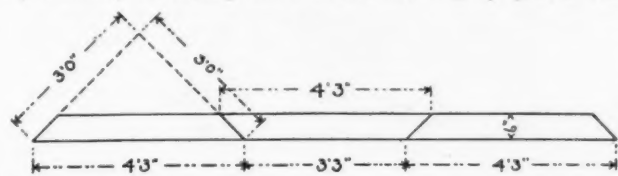
away. There are several well-known methods for cornering the logs, the easiest consists in simply flattening the logs where they come together, every other course alternating at the corners. The best and most skilful method is to dovetail the corners and saw them flush. The joints are usually filled with mud worked into plaster, or plugged with moss. This should be done by two men working at a time, one on the inside and one on the outside. It is claimed that excelsior twisted into ropes and wedged into the joints makes a sealing that requires no plaster, if the logs are put together properly. The logs should be straight, sound and of a uniform size, and some soft wood should be used.

Score One for the New

To the Editor:

Newark, N. J.

Does this solve the problem on page 422 in the article, "Old and New Methods of Learning a Trade," in the January number, of cutting three braces for a 3 by 3 foot run



(each one being 4 feet 3 inches long) from a 12 foot stick? See illustration.

H. A. LLOYD.

Answer: Yes, the solution shows that it not only can be done, but also leaves three inches to spare

Strength of Floor Timbers

To the Editor:

Clayton, Ill.

At one time I was a charter member of your grand old building paper; and hope to be with you again soon. In your paper I got next to your question department. So will take the liberty to ask you one question in regard to bearing strength (or resistance). I am figuring on a building that has just burned down. The parties are figuring on rebuilding; dimensions are 20 feet front by 64 feet run. The plan is to convert the lower story into a store room and the second story into a hotel, or rather, a small rooming house. Now

the question I want to know is this. Will two 2 inch by 12 inch by 20 foot joists, spiked together, have enough strength to hold up the required rooms above; or had I better use 2½ by 14 inch by 20 foot pieces? Which are the stronger of the two? I do not want to use columns below in store room. I will make a rough sketch for you, so you can better understand the rooms I have to put above.

J. W. MCGIRR.

Answer: Your question would have been clearer if you had stated the kind of material you propose to use for your joists, as there is considerable difference in the strength of, say, spruce or hard pine. Also, if you had stated how far apart your joists will be laid.

The breaking weight of a piece of 2 by 12 inch spruce on a 20 foot bearing, with a central load, is 5,760 pounds, while a piece of 2½ by 14 inch, under the same conditions, would break with 9,800 pounds. Taking the 2 by 12 inch and dividing the result given above by 5, as a factor of safety, would give a safe central load of 1,152 pounds, or a safe distributed load of 2,304 pounds, as a beam or joist will carry twice as much with a distributed load as with a central one.

Two by 12 inch spruce joists (not doubled) placed 16 inches on centers, with a row of herring-bone strutting or bridging down the center, would carry all the weight you have to provide for in the building you describe.

T. B. KIDNER.

Thank You

To the Editor:

Numa, Iowa.

Your February issue is a good one, the best yet is our opinion. They are all good; but this was something extra. Wishing you all kinds of best success.

HARRIS BROS.

Cost of House Finishing

To the Editor:

Gainesville, Ga.

I would like to hear from someone through your book as to what is actual cost of finish of a house complete throughout. I mean inside finish, such as laying floors, casing up doors and windows, hanging doors, putting on base and mold, etc.; a turn-key job. I would like the price of each piece of work separately; also the price of putting in windows with weights.

E. O. PETERSEN.

Resurfacing Cement Floor

To the Editor:

Herculaneum, Mo.

In reply to letter of Mr. D. B. Cox in the January number, asking information for finishing his cement floor, will offer the following: Take every particle of the loose cement from the floor, and roughen such places as may be smooth, and soak it with clean water for two or three days or longer; then mix thoroughly one part cement, two parts clean sharp sand, wetting cement after mixing dry, and working it thoroughly. You can't work it too much—making it very thin—and troweling onto the floor in this state. There is no danger of troweling too much while it is soft. Then, just as soon as it is hard enough to finish, trowel smooth, lightly. Then cover it with water for a few days. I have refinished old floors after they have been down two years.

J. W. DUGAN.

How Do You Design Fireplaces?

To the Editor:

Dallas, Ore.

Will some of your readers give information as to the proper construction of a fireplace? What is the proper proportion of the width to the height; the height to the depth, size of throat, flue, etc.? I wish a number would give me pointers through the columns of your paper, if you can spare the space for same.

TOM JONES.

PRACTICAL TRADE APPLIANCES

New Way to Buy Watches and Jewelry

The firm of Harris Goar Company, Kansas City, Mo., have the enviable reputation of selling more watches than any other firm in the world. Their plan is one that has given people, living far away from the city, an opportunity to secure not only watches, but high-grade jewelry of all kinds on the installment payment plan, and to make selections from a large complete stock, comprising the very latest designs.

The watches sold by the Harris-Goar Company have the famous Elgin movement, and are positively guaranteed by them to pass any railroad inspection. The company asks no security from the purchaser, simply relying on the buyer to make the regular payments when due.

No risk is assumed by the purchaser, as the Harris-Goar Company are reliable in every way, and they ask no money down on the purchase of any article shown in their large catalogue.

You may have had a desire to purchase some article of jewelry, or a fine watch, and your local dealer could not supply you. It is to supply just such cases that prompted the Harris-Goar Company to offer a reliable, well-known watch on the small payment plan, and later to include diamonds,

solid gold jewelry and silverware.

Their large catalogue, which is sent you, shows beautiful photo-engravings of many desirable articles not obtainable outside of a large city store, and should be in the hands of all who wish quality goods on reasonable terms.

Their advertisement, which appears in this issue, makes a special offer to our readers, and it may be safely said that what they agree to do will be done. Send for the catalogue and learn just how they are enabled to make such splendid offers and give you such easy terms of payment.



An Unusual Offer

The U. S. Cutlery Company, whose advertisement appears on another page of this issue, surely have the confidence in their goods. Instead of making the usual offer of money refunded which does not always come true, they are advertising a high-grade razor and offer to send it on thirty days' trial—if you are satisfied, keep the razor and send them the price—if it does not prove to be all they claim for it, send it back. That certainly is a fair proposition—but read their advertisement and see what they say.

VENTILATION IN THE DESERT

The United Verde Copper Co., of Jerome, Arizona has just finished a new hospital building and selected nine glass top Burt Ventilators to be used on the building.

Burt Combination Skylight Ventilators

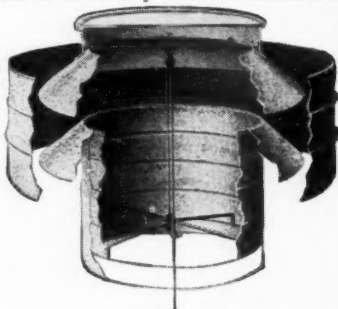
are as efficient in the red hot desert as they are in the crowded cities. They are built with strictly high-grade workmanship and material. All Burt's are provided with patented sliding sleeve dampers, which never shut out the light, even when the damper is closed.

No matter where ventilation is required, Burt Ventilators will do the work more efficiently and with less fuss about it than any other ventilators made.

Send for our new 96-page catalogue, giving fine illustrations of Mills, Shops, Factories and Residences where Burt Ventilators are in successful use.

THE BURT MFG. CO.

500 Main Street
AKRON, OHIO



Notice Sliding Sleeve Damper (patented). Furnished with flat wired glass, up to and including the 72-inch size. Metal Tops furnished if desired.

Gco. W. Reed & Co., Montreal, Sole Manufacturers of "Burt" Ventilators for Canada.

Unlatch the screen, swing it out, and the flies are outside the house. Brush them off and close the screen. Do this once a day and the house will be clear of flies.

BIGGER PROFITS

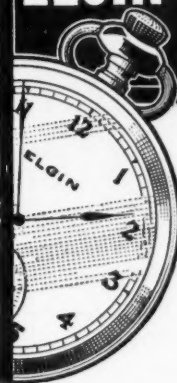
FOR THE CONTRACTOR
Who Uses The
WATROUS NO. 17 SCREEN HANGER

The same pieces, arranged to suit, will hang either a full or a half screen from either the top or side. Storm sash should be hung from the top, but this is the only way to hang a screen.

Only four screws to set instead of twelve, a saving in labor of two-thirds. A gauge mark locates the piece instantly, and makes mistakes impossible. A carpenter who has bought other hangers, could afford to throw them away, buy the Watrous No. 17, and make more money on the job. Mounted working model sent **free postpaid** to dealers or carpenters. Write to-day.

E. L. WATROUS MFG. CO.
DES MOINES : : IOWA

ELGIN WATCHES ON CREDIT



Write
Today
For Our
**BIG FREE
CATALOG**

It tells all about our Easy Credit Plan and how we send Elgin 19, 21 and 23 Jewel Railroad Watches everywhere pre-paid on

FREE TRIAL
without interest, security or any deposit.

SPECIAL THIS MONTH

A High-Grade 17-Jewel Genuine Elgin, in Hand Engraved Case, only **\$14.50**

No Money Down, \$2 A Month

Our \$1,000 Cash Offer and photograph of Elgin Factory are FREE with our Catalog. You can't afford to buy an unknown, off-brand watch or a watch of any kind until you have our Big Free Catalog. Just your name and address on a postal will do.

HARRIS-COAR CO.

Largest Watch House in America

1471 Grand Avenue KANSAS CITY, MO.

Amatite Roofing

Why Use Paint to Protect Your Roof?

WHY not get a roofing in the beginning that will protect itself—that needs no painting?

All smooth surfaced ready roofings require a coat of paint or some liquid every year or so. The roofing itself merely acts as a base for the paint. If you fail to put it on, your roof doesn't last very long.

Amatite Roofing requires no paint of any kind. It gives protection from the moment you lay it until it is worn out, without spending another cent for extras. Its real mineral surface makes this possible.

What you spend merely for paint and repairs on other roofs will in a few years pay entirely for an Amatite roof.

Anyone can lay Amatite. It requires no skilled labor. Nails and liquid cement for alps are furnished free with each roll. Write for Free Sample and Booklet and investigate its merits for yourself.

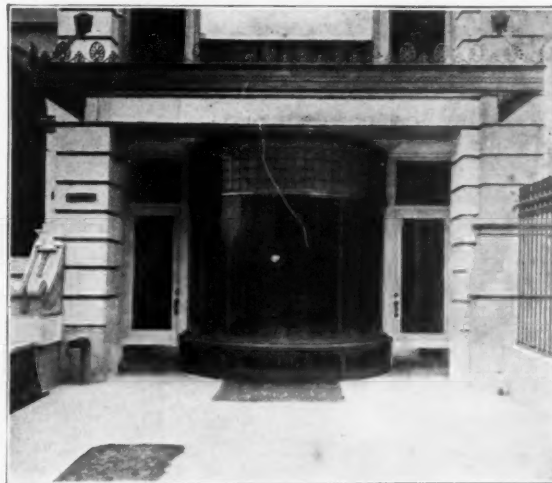
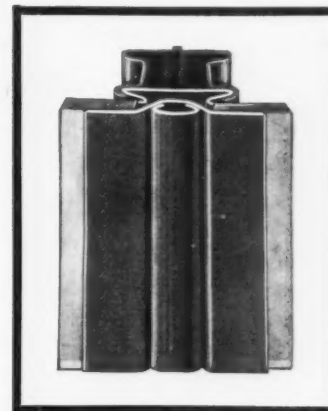
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New York Chicago Philadelphia Boston St. Louis
Cleveland Pittsburg Cincinnati Kansas City
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Kawneer System OF STORE FRONTS

CRepresents the highest standard of store front construction. Every foot of it represents twelve inches of store front satisfaction and the architect in specifying our system not only secures a practical and artistic all metal construction, but provides an efficient system of ventilation and drainage, reduces to a minimum the cost of plate glass insurance and ensures

for himself and client the greatest possible degree of satisfaction. Specify the Kawneer System, not alone because it is the most complete and correctly designed store front, but because of its durability, compactness and adaptability.



CWe can follow your specifications for anything in special design metal mouldings and you can expect only high-class workmanship and first quality materials. Our engineering and drafting department will supply any information and provide all special drawings when requested. Our technical catalog, samples and price list "B" should be in the hands of every Architect and Builder. Your request for same will be given prompt attention.

"It stays and pays"

KAWNEER MFG. CO.

HOME OFFICE, NILES, MICHIGAN

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Pittsburgh
Spokane
London, Ont.
Denver

New York
Portland
Atlanta
Lincoln, Neb.
Sioux City, Ia.
Vancouver, B. C.

Kansas City
Detroit
Cincinnati
Syracuse, N. Y.
Houston
Seattle

Extending the Contractor's Field

A new business—or, what is substantially such, so far as the contractors and building trade are concerned—has been developing during the last few years in Minneapolis.

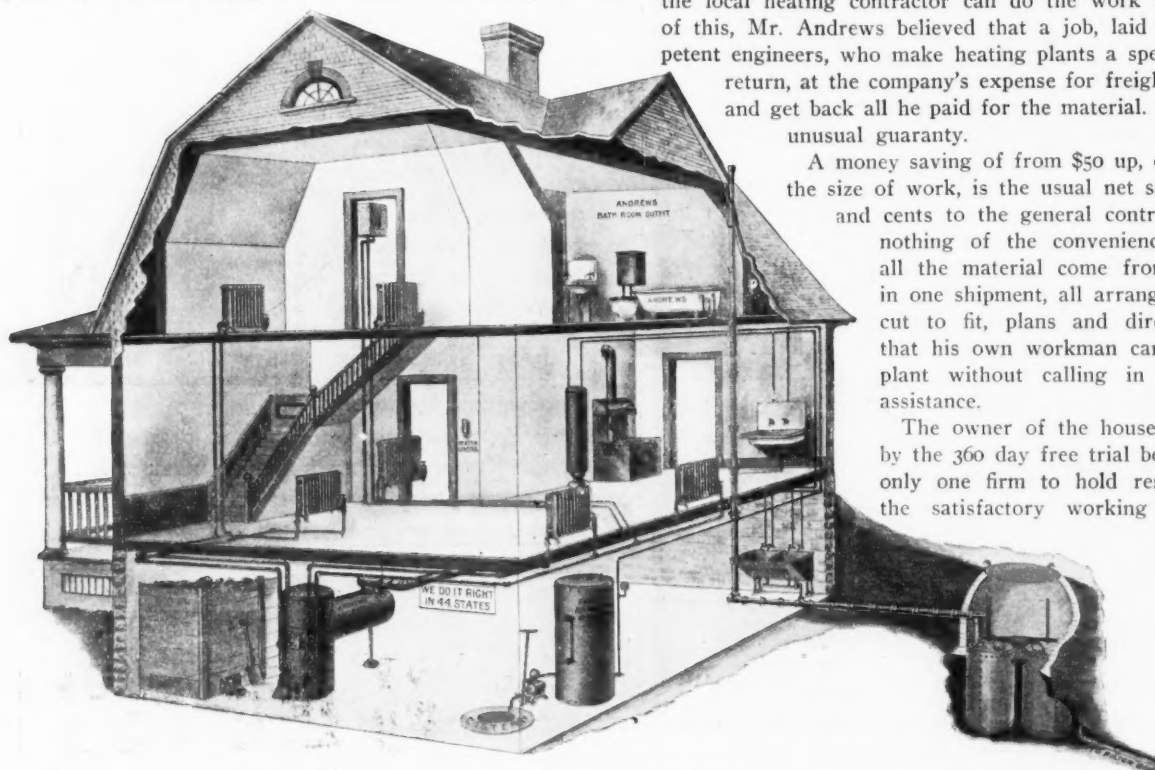
As usual, in every new departure, one man is responsible primarily for this change in the method of doing business

the cut-and-try methods of small and often inexperienced tradesmen.

So successful and satisfactory to all concerned has this method proven that this concern gives a 360 days' free trial guaranty bond with any plants sold; allowing the user to try the apparatus for 360 days, and at the end of that time the local heating contractor can do the work for. On top of this, Mr. Andrews believed that a job, laid out by competent engineers, who make heating plants a specialty, would return, at the company's expense for freight both ways, and get back all he paid for the material. It is a most unusual guaranty.

A money saving of from \$50 up, depending on the size of work, is the usual net saving in dollars and cents to the general contractor, to say nothing of the convenience of having all the material come from one place, in one shipment, all arranged with pipe cut to fit, plans and directions, such that his own workman can put up the plant without calling in any outside assistance.

The owner of the house is protected by the 360 day free trial bond; and has only one firm to hold responsible for the satisfactory working of heating,



which makes contractors more than twice as useful to the public—and gives them the opportunity to make their jobs correspondingly profitable.

As a rule, until lately, the builder's contract ended with the erection of the structure and finishing. He had nothing to do with heating, lighting, plumbing, water supply, sewage disposal; or, if he did, these parts of the general contract were sub-contracted.

Now this Minneapolis man, George C. Andrews, or rather the Andrews Heating Company, of which Mr. Andrews is the founder and manager, sells cut-to-fit heating plants, plumbing equipment, air pressure water supply outfits, septic-tank sewage disposal systems, all complete, ready to screw together, so that any mechanic can erect.

Mr. Andrews is a mechanical engineer who, when he came out of college, put on overalls and learned the business from the workman's side. He has been in the heating contracting and manufacturing business for over twenty years, in various lines; and the present extensive enterprise is the outgrowth of the belief that hot water heating plants can be factory-made complete, shipped knocked down, and sold for less than be more economical and more efficient than jobs put up by

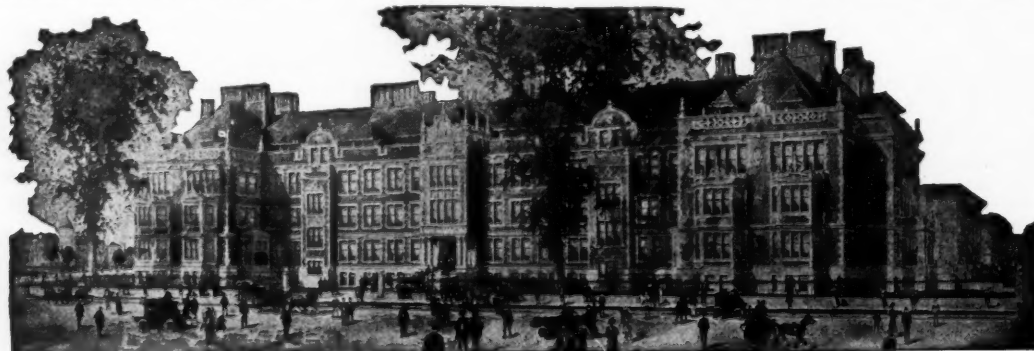
plumbing, water supply and sewage disposal systems, with the additional satisfaction of knowing that he has goods of the best quality of their several kinds.

A book of 72 pages, 9 by 12, with over 300 illustrations, describing their various systems for buildings of all sizes and their business methods, has just been issued, which they will send to any contractor upon application to their offices—1063 Heating building, Minneapolis, Minn., or 1063 Marine building, Chicago, Ill.

Folwell Hall, the illustration at the bottom of this page, the largest building at the University of Minnesota, and one of the largest university buildings in the world, is one of a number of big buildings whose equipment is illustrated and described in this book.

Three styles of steam and hot water heating boilers, vertical steel, locomotive steel and cast iron, are shown with sectional views and table of specifications and capacities. Window and wall radiation, as well as standard styles in single 2, 3, 4 and 5 columns, are shown and sizes given. A trip through the factory, showing boiler in process of construction, is illustrated.

Air pressure water supply outfits for suburban homes,



LUMBER AND BUILDING MATERIAL

Special Offer to Contractors and Builders

Buy From Us
at WRECKING
PRICES

CHICAGO HOUSE WRECKING CO.

THE OPPOR-
TUNITY OF A
LIFETIME

IMPORTANT! Send Us Your Lumber and Building List for Our Estimate

Send Us Your Lumber Bill for Our Estimate!

We urge you to send us your carpenter's bill for our estimate. Have him make up a list of every single item you will need and send it on to us for our prices. We guarantee to go over it carefully and itemize it fully and to send you a clear concise statement of just what we will furnish and the prices will be so low as to secure your order. You can include in your list of material everything needed; that means even plumbing and heating material.

FREIGHT PREPAID OFFER

We make our quotations Freight Prepaid. That means delivered free of all charges to your railroad shipping point. No trouble with the Railroad Companies for you. We assume every possible risk. We guarantee safe, sound and prompt delivery and if any material reaches destination damaged, we make good at once and assume all your claims against the Railroad Company.

100,000,000 Feet New Lumber at Wrecking Prices

We purchased direct from the Mills, at various Forced Sales, thousands of carloads of high-grade, first-class, brand new Lumber. We bought it at sacrifice prices and we are offering it for sale at a reasonable margin of profit. This is an opportunity of a lifetime to buy the very best Lumber manufactured at prices less than the dealer or jobber can ordinarily buy it for. Don't delay a single moment. Even if you have no immediate need for lumber, the time to buy is today when our low prices are calling on you for action. You will never again be able to buy lumber at such low prices as we offer. We don't ask for money in advance. You can buy without sending one cent of money with your order. All we require is a guarantee as to your responsibility. Money refunded if material is contrary to our representation. We have a capital stock and surplus of over \$1,000,000. We refer you to any bank or banker anywhere. Or you can write direct to the Great Stock Yards Bank, The Drovers Deposit National Bank of Chicago.

Satisfaction Guaranteed.

We guarantee absolute satisfaction. We mean every word of that. We want your business only on a square business-like basis. We will deal honestly and fairly with you. If you buy any material not fully up to our description, we will either refund the purchase price or exchange it for correct material. This company has a capital stock and surplus of over One Million Dollars. We refer you to any Bank or Banker anywhere. Write to any commercial agency or ask us for names of people who have bought their lumber from us recently and we will send you copies of hundreds of letters received by us daily. Our best advertisement is the vast number of satisfied customers.

WRITE TODAY FOR OUR LOW LUMBER PRICES

Ask us to send you our latest lumber price list. It will be sent you so clearly and plainly that you can tell at a glance just what our quotations are. The grades are clearly defined. No attempt to humbug you on quality. We want to furnish you just what you buy. We want you to be able to say you "buy your lumber and building material from us and get value for your investment." That's the way we built up this business. That's the way we intend to continue to build. We require your patronage and good will. Outline your needs and we will make you a reply so convincing and clear that you can't help but give us the business.

Everything Used in Building Sold at 20 to 75% Below Regular Prices

DOOR BARGAINS!



One lot of 5,000 brand new 4-panel doors of standard manufacture, size 2 ft. 6 in. x 6 ft. 6 in., 98 cents each; size 2 ft. 8 in. x 6 ft. 8 in., \$1.05 each. We carry a complete stock of brand new doors and can supply any size or style desired. High grade front and vestibule doors in many handsome designs, the best that can be made by the use of the latest improved machinery and skilled workmen, at prices ranging from \$2.75 to \$20.00. These doors are glazed and beveled plate glass, or can be furnished with fancy lace pattern, double strength glass. They are strictly "A" quality and are made up in first grade Pine, Oak, Birch and other kinds of wood.

California Redwood sash doors, strictly first class and glazed clear double strength glass, 2 ft. 6 in. x 6 ft. 6 in., \$2.40; 2 ft. 8 in. x 6 ft. 8 in., \$2.50. Double sash doors for stores and vestibules strictly brand new, "A" quality White Pine, 1 1/2 in. thick, glazed double strength glass, size 3 x 7 ft., pair, \$9.00. All sizes in stock up to 6 ft. and 8 ft. Interior doors of all descriptions. Brand new, O. G. 4-panel White Pine doors, 2 x 6 ft., \$1.22; 5-cross-panel O. G. White Pine doors, raised panels both sides, strictly brand new, size 2 ft. 6 in. x 6 ft. 6 in., \$2.07 each; size 3 x 7 ft., \$2.80 each.

HIGH GRADE MILL WORK!



Send us for an estimate on mill work. We are in a better shape to quote low prices than any other concern on earth. Our stock is not bought in the regular way. We purchase at Sheriff's Sales, Receivers' Sales and Manufacturers' Sales. Our customers get the benefit of such purchases, which are invariably under the market. We can supply mill work of any kind and character. We can furnish according to specifications, whether regular or special stock is desired. Send us a memorandum of your requirements and we will make you an estimate. Note some of our low prices: Strictly No. 1 Colonial Porch Columns, complete with cap and base, 6 in. in diameter, 8 ft. long, \$1.70 each; 8 in. in diameter, 8 ft. long, \$2.25 each. These are the regular lock joint staved columns and are well made in every way. Fancy turned Porch Columns, 4 x 4 in., 8 ft. long, 65 cents each; 5 x 5 in., 8 ft. long, \$1.00 each; 6 x 6 in., 8 ft. long, \$1.50 each. Fancy turned Porch Newels, 35 and 40 cents; Stair Newels of many handsome designs, \$1.90 and up.

WINDOW BARGAINS!

Windows from 25 cents up; 5,000 used windows from various wrecking operations. Some of these windows are very fancy and will be sold at less than half the price of new ones.

New Windows—We have a complete stock of brand new windows which we are able to offer at extremely low prices. Note the following quotations on new stock: 2-light, 1 1/2 in. check rail windows, size of glass, 16 x 20 in., at 50 cents each; 20 x 20 in., 8 cents each; 22 x 24 in., 90 cents each; 24 x 28 in., \$1.10 each.

Four-light, 1 1/2 in. check rail windows, size of glass, 10 x 20 in., 70 cents; 12 x 20 in., 78 cents; 14 x 20 in., 96 cents; 15 x 30 in., \$1.47.

Eight-light windows, size of glass, 8 x 10 in., 57 cents; 10 x 12 in., 75 cents.

Twelve-light windows, size of glass, 8 x 10 in., 75 cents; 10 x 12 in., \$1.03.

Three-light Cellar Sash, 35 cents; Barn Sash, 43 cents; Stall Sash, 32 cents; Attic Sash, 35 cents. Large stock of storm sash at prices ranging from 70 cents up.

Special—500 brand new Hot Bed Sashes, 3 x 6 ft., glazed with 4 rows of clear 3/4-in. glass, at \$1.60 each; in lots of one dozen or more, \$1.55 each.



READY ROOFING 50¢ PER SQ.

At this price our "Gem" brand ready roofing, 108 sq. ft. to the square. The best bargain ever offered. Only 3,000 squares for sale. No supplies included at this price. We do not recommend the purchase of this grade; read our wonderful offer on the best roofing in the world.

Rubberized Galvo Roofing!

The highest grade Roofing covering manufactured. Guaranteed absolutely equal or superior to any other kind manufactured. Positively covered by a binding guarantee that protects you in every way. It is the regular grades manufactured. It is not in continuous lengths to each roll. A roll of roofing usually comes in one continuous piece, but the roofing we are offering is put up two to five pieces to a roll. That, of course, does not affect the quality at all. In fact, some people prefer it, as it is easier to handle. We furnish plenty of material, so that all laps can be properly taken care of. We are not allowed to tell you the name of the manufacturers for confidential reasons. If there is any roofing better than this, we haven't heard of it. Our price 50 per cent below what is usually asked for roofing of similar quality. One ply, per square, \$1.25; two ply, per square, \$1.40; three ply, per square, \$1.75.

PLUMBING AND HEATING!



\$1.25 for a White Enameled Kitchen Sink, 3,000 handsome cast iron, flat rim, white porcelain enameled, brand new kitchen sinks 16 in. wide and 24 in. long, with nickel plated strainer and collar for connection, all ready to install. Kitchen sinks with backs, made in one piece at prices ranging from \$7 to \$15.

Steam and Hot Water Heating Apparatus. We guarantee to save you out from 30 to 50 per cent on heating jobs of every kind. Send us your blue prints and specifications for our estimate. Our plans are of the most moderate construction. Write for anything.

White Enameled Bath Tub



\$3.00 buys a White Enameled Bath Tub, 600 "New Style" bath tubs, finest galvanized steel with the enamel baked on the inside, nicely finished on the outside, heavy wood rim, 5 ft. long. Bath Room Outfits, \$25. With steel enameled tub, vitreous earthen closet bowl, polished, hardwood seat and tank, complete with nickel trimmings ready to install. Other complete outfits from \$35.00 to \$150.00. Plumbing Material of all kinds at prices that do not represent cost of production. We buy at Sheriff's and Receivers' Sales only; that's why we can undersell all. Send today for our low estimates on plumbing material.

MIXED WIRE NAILS, PER KEG \$1.60



These Nails were on board barge sunk in the Ohio River and are more or less rusty. They are practical for use and make a fine handy assortment. Put up mixed, just as they come, 100 lbs. to the keg. Sizes from 3 to 40D. Per keg, \$1.60. Nails, straight sizes just one kind to a keg with slight surface rust, sizes 3 to 60D; also Casing Nails and Finishing Nails, all kinds; price per keg of 100 lbs., \$2.00. First-class bright, clean new Nails, 20D common, per keg, \$2.20.

DON'T BUY YOUR BUILDING MATERIAL UNTIL YOU GET OUR ESTIMATE

FREE CATALOG COUPON!

CHICAGO HOUSE WRECKING CO., Chicago
Cut this out and mail to us at once.

I saw your advertisement in.....

Name

Town

County State

R. F. D. No.....

Send me free of all cost your Wonderful Catalog and Building Offer, as advertised.

Send for Our Free Mammoth Illustrated Catalog No. 742

We publish a book of some 500 pages, containing a general record of our goods and showing millions of dollars worth of merchandise secured by us at Sheriff's Sales, Receivers' Sales and Manufacturers' Sales. It is a friend to every economical person. You cannot afford to be without it. It lists Building Material and Supplies, Machinery, Roofing and Wire, Structural Material, Hardware of all kinds, Furniture and Office Fixtures, Belting and Rubber Hose, Plumbing and Heating Apparatus, Pipe, Valves and Fittings, Wire and Manila Rope, Electrical Apparatus, Saws and Vault Doors, Tanks, etc. In addition to this General Catalog we publish a "BOOK OF PLANS." It shows illustrations of modern houses and barns; gives illustrations from life as well as floor plans; it explains our unique offer to furnish all material needed to construct any buildings shown in our book. You can get a complete set of plans, specifications and bill of material for \$2.00. Or, furnished free with your order. We also publish a Furniture Catalog showing handsome designs in Household Goods, Furniture and Office Supplies. Write us your wants. We can save you big money.

CHICAGO HOUSE WRECKING CO., 35th and Iron Streets., CHICAGO



Let Us Send This Package Free

—Consisting of a Bottle of Johnson's Wood Dye—A Bottle of Johnson's Electric Solvo—A Sample of Johnson's Prepared Wax—Set of Panels Showing Our Different Colors on Wood—And Our Valuable Text Book on Painting, Decorating and Home Beautifying.

We want you to know the value of Johnson's Preparations for the treatment of wood. That is why we are making this big and generous free offer to every reader of this magazine.

Just fill out this coupon, send it to us, and we will send you this large package containing all the articles mentioned above—a free supply, ample enough to prove in your own work, or in your own home on a piece of furniture, how superior Johnson's Preparations are.

Johnson's Wood Dye is a dye *in fact*—not a mere stain that merely coats over the surface. It is a deep-seated dye that becomes part of the wood, brings out its full artistic beauty. Can always be depended on to be a true shade.

Select any shade you wish from this list:

No. 126 Light Oak
No. 123 Dark Oak
No. 125 Mission Oak
No. 140 Manilla Oak
No. 110 Bog Oak

No. 128 Light Mahogany
No. 129 Dark Mahogany
No. 130 Weathered Oak
No. 131 Brown Weathered Oak
No. 132 Green Weathered Oak

No. 121 Moss Green
No. 122 Forest Green
No. 172 Flemish Oak
No. 178 Brown Flemish Oak

Write today for this free package.

Simply fill out the coupon—be sure to give your paint dealer's name and address today.

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"The Wood Finishing Authorities"

Please Use this FREE COUPON
I accept your offer of Free Booklet Edition A. C. B. 3 and samples of Johnson's Prepared Wax, Electric Solvo, Wood Dye, shade No., also Set of Finished Wood Panels.
Name.....
Address.....
I usually buy my paints at store of Name.....
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THE JOHNSON

Adjustable Floor Scraper

BEING Manufacturers of Fine Flooring, we have for years been interested in perfecting a Floor Scraper that would do high grade, fast work on all kinds of hardwood floors. We now have such a machine ready for your use and inspection.

A trial will conclusively prove to you that the JOHNSON Adjustable Floor Scraper is today the only Scraper that does *rapid* work and *good* work at one and the same time.

That is because it is built on the *right* Mechanical Principle.

Not only can an ordinary man using the JOHNSON do the work of five men, but when the job is finished it is done just as well as it could be done by hand with a Smoothing Plane.

The JOHNSON Floor Scraper leaves no *waves*, because the *blade*, being instantly *adjustable* by the lever on the handle, (see illustration) goes *with* the grain all the time.

All you have to do is press a lever to shift the knife just at the moment it *needs* shifting from an upright to a horizontal position, or to any intermediate angle. Thus you get the proper Shearing Cut at all times. No *waves* or *uneven* spots. The JOHNSON means *high class*, as well as *rapid* work. It does equally fine work on any kind of wood—oak, hard maple, pine, beech, birch, etc. No getting down on knees to adjust the Blade and no getting out of fix.

Every piece and part of this Floor Scraper is of the very best material obtainable and is made and assembled by skilled mechanics. There is nothing complicated about it and for that reason it cannot fail to give many years of perfect satisfaction. No other Floor Scraper is like the JOHNSON—or so good. A few days' use of the JOHNSON in your hands will prove these things to you conclusively.

Blade is Instantly Adjustable The JOHNSON Does the Work of Five Men and Does It RIGHT

When you consider the fact that with the JOHNSON a man can cover 125 sq. ft. of floor per hour and do it *right*, you must realize that it is a great money-making device. The thousands of practical workmen who are using it say it is the *one* Scraper built on the correct Mechanical Principle.

We want you to use and try the JOHNSON and see it *in action*. We want you to compare it to *hand methods* and to all other Floor Scraping Devices to be had. This Test will cost you nothing whatever, unless you decide that the JOHNSON Floor Scraper is all we claim for it in every particular.

**Send Us Your Name Today for
Our Free Trial Proposition,
Booklet Edition ACB-3, Prices,
Etc., Etc.**

Write now—today—for Free Information and Prices on the JOHNSON Floor Scraper Complete, including full set of Knives, Sharpeners and everything necessary to keep the machine in perfect order. Send in your name at once and have us arrange to ship you the JOHNSON Floor Scraper for you to try Free—Address us,

**S. C. JOHNSON
& SON**

*"The Wood Finishing
Authorities"*

**Racine
Wis.**

THE ONLY Floor Scraper Built On the Correct Mechanical Principle



farms, any place where city water is not available, are accurately described and illustrated for nearly every condition of power and water supply.

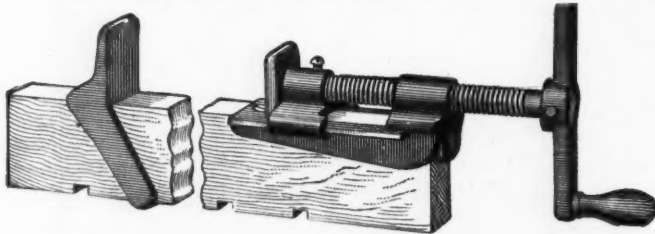
The plumbing and sewage disposal idea alone is of so much value to any contractor that he cannot afford to be without this book. The problem of plumbing and sewage disposal, where there is no city sewer, is discussed and a sanitary, satisfactory and inexpensive solution described and illustrated.

Please mention the **AMERICAN CARPENTER AND BUILDER** when writing for this book, and a brief statement of the nature of your business will help to insure satisfaction to you.

Sheldon's Wood Bar Clamp

E. H. Sheldon & Co., 84 North May street, Chicago, Ill., manufacturers of new labor-saving tools and appliances for woodworkers, and whose rapid-acting steel rack vise is in such general use among woodworkers, are now making a specialty of their latest cabinet clamp fixture, shown in the illustration.

This clamp is designed to attach to wood bars, $1\frac{1}{4}$ inch



thick by $2\frac{1}{2}$ inches wide, any length. These fixtures attached to hardwood bars make the strongest, lightest, most easily operated wood frame clamps to be had at any price. The screws are $\frac{5}{8}$ inch in diameter, 7 inches long, with deep,

square threads cut from cold rolled steel. The sliding head is supported by malleable guides, thus relieving the screw of any bending strain when clamping irregular or thin stuff. They also keep the head from turning when pressure is being applied. The heads are easily hung, and will not get loose or out of line with the frame, or split the wood to which they are attached.

No woodworker can afford to be without an outfit of these clamps. Write today for full particulars.

Somers' Block and Brick Machines

When one attends the conventions that are being held in various parts of the country, and sees the hundreds of different machines that are on the market for the manufacture of concrete blocks, bricks, etc., it is extremely hard to pick between them. A good many people like the tamping method of making, while an equally large number prefer the press method.

According to tests made in the laboratories of the University of Illinois, blocks made on the Somers' machine will withstand enormous weights. On one block tested there, a total weight of 328,000 pounds was sustained on one of these blocks, and this statement will convince the most skeptical that they will withstand any weight that will be required of them. They claim their machine to be the best on the market, and each block is individually given a pressure of 60,000 pounds. This pressure being uniformly applied, every block is exactly the same size and density. Each block is made face out, the way they stand in the walls and this gives them greater strain resisting qualities over blocks that are made face down, it is claimed.

One of the strongest features of their machine is the fact that it will handle a wetter mixture than any other machine made. All things being considered, it is the cheapest machine

SEA GREEN & PURPLE SLATE

MAKES

Roofs That Never Wear Out

Sea Green and Purple Roofing Slate is the *only* roofing material that *never wears out*. That affords spark and fire protection, pure cistern water, reduces insurance rates and *never* requires a dollar for paint or repairs—the kind of roofing your customers are demanding and are going to buy—either through you or the *first man* in their neighborhood who can supply their wants.

CARPENTERS AND BUILDERS

Don't you see the demand that is developing in your locality for a strong, durable roofing material? Something that will give faithful service without yearly paint and repairs expense? Don't you *realize* that with very little effort you can establish a very profitable growing Slate Roofing Business? One that can be conducted in connection with your present line without added trouble or expense. We want you to take up Slate Roofing this spring and handle our **Sea Green and Purple Roofing Slate**. Write to us at once for delivered prices and *free* book of instructions. Don't delay. Write today.

AMERICAN SEA GREEN SLATE CO., Box 36, Granville, N. Y.

SUCCESSFUL DRAFTSMEN

Draw Good Plans Draw Good Money

If You are Tired Being
— a Hard Working —
Carpenter or Builder
then Make Yourself the
Highest Grade and Highest
Priced Man in Your Place

To do this you must be a good *Draftsman*, not one of those "*would be*" ones, *no*, but a first-class man, with actual, practical *drafting room experience*.

It will pay you well to learn this right from a practical man with twenty years' experience who will instruct *you* personally —individually on high-class *architectural* drawing, complete building designing and detailing in all branches;

Who will qualify you at home in a few months to double your earning capacity

Don't waste time and money trying to learn from books or printed lessons made for all alike, the same as patent medicine; you can only learn this right on *practical work* from a practical man.

Free This Month

We furnish a high-grade Complete Drawing Outfit, including a \$13.85 Set of German Silver Tools.



If you want to be the "BEST MAN" write me to-day. Address—

Chief Draftsman

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Eng's Equip't Co. (Inc.) Chicago



Chief
Drafts
man



Chief
Drafts
man

on the market, as it cuts the labor of making blocks in two, the machine doing the work and not the man. On this machine over 200 different sizes, kinds and styles of block may be manufactured; and this complete equipment is included in the price of the machine.

The Somers' pressed brick machine is constructed on principles that are scientifically correct, contrary to the methods employed by some others. The Somers' machine itself does the larger portion of the heavy work, and this consequently means an exceedingly large portion of time saved. It's right in every respect, there being no skimping of any part or cutting down to save weight and expense in construction.

The face plate arrangement is so perfectly adjusted, that one may be removed and another substituted without any delay or loss of time. It can be set up and adjusted by any man of ordinary intelligence, and its simplicity of construction and the absence of unnecessary parts, prevents the machine from getting out of order.

A card addressed to this company will bring their catalogue with detailed information.

Jackson System of Economic Building

One of the most interesting exhibits of the recent Cement Show was that of the F. M. Jackson Company, of Akron, N. Y. It is said to be the very latest thing in concrete construction, and the carpenters and builders who examined it may well believe that this is so.

The economical use of concrete is of interest to everyone, as this splendid material is rapidly displacing stone, brick and timber construction. The Jackson system solves the problem of a strong, fire-proof and damp-proof building at a lower cost than a frame building of the same dimensions. This may be considered a strong statement, but the Jackson Company will gladly furnish proof of every claim. They

point with pride to structures built by this method, where in each case the saving over every other system of concrete, brick or frame was proven beyond a doubt.

Complaint is often made that concrete walls are damp and unhealthy. Strenuous efforts are being put forth by block manufacturers and others to waterproof concrete walls, or to produce concrete block walls that will not prove damp and unsanitary. By this method a damp wall is impossible—a dry, sanitary and healthful building is assured—and still the great strength and durability of the structure can not be



questioned. In constructing by the Jackson system no expensive forms are necessary and the speed with which the work may progress is truly remarkable. This must not be confused with ordinary "half-timber" or "stucco" methods of building, for while the outward appearance may be the same if desired, the actual method and results obtained are



Asbestos "Century" Shingle Roof—Dayton Gun Club, Dayton, Ky.; William Lampe, Newport, Ky., Architect; R. L. Brown, Covington, Contractor

Asbestos "Century" Shingles

"The Roof that Outlives the Building"

The architect or builder who has been used to regarding all roofings as a choice of evils should learn about Asbestos "Century" Shingles—dense and elastic sheets of asbestos-fibre cement, the first roofing material that grows progressively better under exposure to the elements.

Damp weather hastens maturing—aids in the hydration of the cement and its crystallization about the reinforcing asbestos fibres.

Asbestos "Century" Shingles are made of the two truly fire-proof and time-proof substances. They protect the building and need neither painting nor repairs—cannot rust like tin, or decay like shingles, or crack and split like slate when frozen and thawed or hold moisture and rot the roof timbers like tiles.

Three colors, numerous shapes, and several sizes.

Ask your Roofer for new quotations. Write for Booklet "Roofing 1908."

The Keasbey & Mattison Company, Factors
Ambler, Pennsylvania

The Employer Who Economizes

ODD jobs around a machine shop properly done with right tools—or careful work in the pattern shop, means a big lowering of items on the cost sheet. If a hole—insignificant in itself—be rightly done on the pattern, it means that much less work on the finished product.

The less a machinist knows about woodworking—the more he needs the perfect boring auger bit,—the “Irwin.” Upon its qualities he can depend absolutely. His mechanical training will show him how to bore at the angle he desires—the quality of work he may safely leave to the Irwin Auger Bit.

But its training for perfect work extends back farther. For every Irwin Auger Bit is made of special quality tool steel—tested for temper taking quality—for tensile strength—stretching or straining; for torsion-turning and twisting.

Every Irwin Auger Bit is drop-forged under a thousand pounds pressure—lathe-turned to the perfection of a template, full polished—tip to tip.

Every Irwin Bit is tempered by a secret process in molten tin, oil and brine. Each Irwin Bit passes through fifty hands.

The Irwin Bit does perfect work because it is made of perfect material and is scientifically accurate in design, construction and workmanship.

If your kit does not contain a set of Irwin Auger Bits, it is not complete. You can buy a case or roll of Irwin Auger Bits to suit your purpose.

Each set of 20½ quarters contains one each 4, 5, 6, 7, 8, 10, 12, 14 and 16 sixteenths Auger Bits and one 6-inch screwdriver bit.

Each set of 25½ quarters contains one each 4, 5, 6, 7, 8, 9, 10, 11, 12, 14 and 16 sixteenths Auger bits.

Each set of 32½ quarters contains one each 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15 and 16 sixteenths Auger Bits.



No extra charge for sets in cases or rolls. The Irwin Model Bit Case is the handsomest, handiest bit case made. Built of quarter-sawn hardwood, finely polished folding lid and sliding drawer.

Irwin Bits are recognized everywhere as being the strongest, finest finished, most accurate, the fastest and easiest cutting, and the least liable to choke of any bits now on the market. Irwin Bits will bore in the end or side of any wood.

Note the stamp on the stem. It is placed there for your protection in buying the best, for the dealer's protection in selling the best, for our protection in producing the best.

When you go to buy, look for the name “Irwin.” If a bit is not branded “Irwin” it is not the genuine Irwin Bit. Find that stamp if you want the most for your money and the strongest, easiest and fastest boring bits made.

If your dealer does not keep them, write us and we will see that you are supplied. You need Irwin Bits.

The Irwin Auger Bit Company

Largest in the World

Station C18, Wilmington, Ohio.





Look for this trade mark etched
on every saw.

**Simonds Saws
are the Best—**

**and They ARE
the Best**



A fair trial by any fair minded carpenter. That's all that is necessary to prove our claim of high quality in Simonds Saws. You want a saw that has the right temper, holds its cutting edge, hangs right, saws true and has a well shaped handle correctly set on the blade. These are the points to be considered when you buy a hand saw. Points essential to a good saw. Points that will be found in Simonds Saws.

Made of Simonds Steel

Simonds Steel is made in a Simonds Steel mill exclusively for saws. We make any size or point, straight or skew back, hand, panel, or rip saw also compass keyhole and back saws. Tell us what saw you want and we will send address of Hardware Dealer near you handling Simonds Saws and will also send you a free copy of Simonds Carpenter Guide.

SIMONDS MFG. CO.
FITCHBURG, MASS.

Chicago New York New Orleans Montreal
San Francisco Portland Seattle London

vastly different and the expense much less.

The Jackson system is extremely simple, and by its use the architect's ideas and designs may be carried out as easily as in a frame building. The fine residence here illustrated is a good example.

The basic idea of this system is simplicity itself. It is of a nature to make it particularly interesting to carpenter-contractors. It is a form of concrete construction that they can take up to great advantage to themselves.

We understand that the prices for the control of the Jackson system in any desired district are indeed reasonable. A careful investigation of the claims of this system will convince you that it is not only superior to concrete blocks, brick, etc., but that the profits to be derived from it are more gratifying.

Slate Roofing as a Business

The American Sea Green Slate Company, Box 36, Granville, N. Y., is offering a proposition that is particularly attractive to carpenters and builders. They want to interest you in the matter of slate roofing—to show you a few of the very many points of superiority that a slate roof has over any other form of roofing, and to put you in the way of establishing a growing and profitable business.

You will concede that the roof of any building is the important feature—that upon it depends not only the durability and preservation of the whole structure, but the safety of the contents and the comfort and health of the occupants.

It therefore must follow that every man has a strong, active interest in the roof question, whether for old or new buildings, and that he wants the best possible roofing material—the one affording the greatest protection, longest service, at the lowest price, quality considered.

Here is where their proposition begins. They want you to take up slate roofing, and can demonstrate beyond a doubt that it will be to your financial advantage to do so. This makes the matter seem interesting, doesn't it?

In the first place, for a live, energetic man, the slate roofing business presents unlimited possibilities so far as amount of available work is concerned.

You can see that this is true. In some sections a large amount of new building is constantly going on—all requiring roofs. In neighborhoods where there is but little building there are simply hundreds of old, worn-out roofs that must soon be replaced.

In the second place, the average man wants the best possible materials—whether it be clothes, farming implements or roofing, and is perfectly willing to pay a fair price, or even a good price, for anything that he believes gives him full value for his outlay.

Now, when you put on a slate roof for a man, say of either Sea Green or Purple slate, you are giving him the biggest and best value for his money that he has ever had on the roofing question. This is an absolutely demonstrated fact. Why can't you have a good price for the work?

When you go to a man and explain the great advantages of a slate roof and show how he can settle his roof question and troubles for all time—don't you feel sure that a slate roof will at once appeal to him? Won't you have a first-class chance of slate roofing his buildings?

Particularly when the cost of a slate roof is reasonable as compared with what he has been paying out for short-lived roofing?

And when you lay a few slate roofs in your neighborhood, won't same interest every owner of a worn-out roof, who has got to replace it soon and is looking for something durable?

And the prospective builders will surely be interested in those slate roofs.

Thirty years' experience has shown that a first-class, profit-

MASTIC ROOFING

MEANS

A Perfect Roof



We offer Special Inducements to all Contractors and Builders putting on the first Mastic Roof in every locality where it has not been introduced.

We Will Appoint Live Selling Agents

Mastic Roofing is a guaranteed product and represents the highest type of perfected ready roofing that it is possible to produce from the best materials and with the best manufacturing equipment.

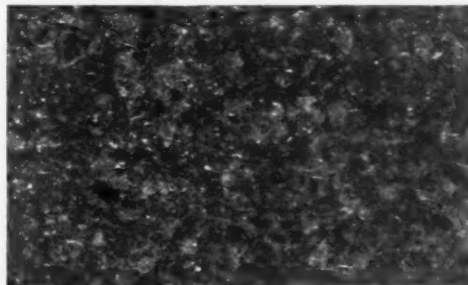
The life of any prepared roofing is determined by the quality and quantity of its coating. **Mastic Roofing** has a base of specially woven jute, for first strength, with a heavy ply of pure all-wool felt on the back as a cushion, the whole being bound together and heavily coated with 55 pounds of Asphalt Mastic to the square and having a mixed mica and sand finish on the weather side.

Mastic Roofing never requires painting because in our special process of manufacture it is coated with Asphalt Mastic equal in thickness to seven or eight coats of good paint.

Mastic Roofing is not the lowest-price roofing per square at first cost, but it is the cheapest and most economical in the end. It is laid the easiest and will out-last any other ready roofing made.

Contractors, Builders and Owners will find it greatly to their own advantage to investigate Mastic Roofing. It will cost you nothing to let us show you the "Hows and Whys" of its superiority.

Just write us now—today—and let us submit the best roofing proposition you ever received.



THE ABOVE CUT IS AN EXACT REPRODUCTION OF A PIECE OF MASTIC ROOFING 2½x1½ INCHES AND SHOWS THE SLIGHTLY SURFACE FINISH.

Booklets and Samples Free

National Roofing Materials Co.

EDWARDSVILLE, ILL.



able slate roofing business can be established anywhere if a live, energetic man takes the matter up and pushes same, bringing the merits of slate as a roofing material to the consumer's attention.

Be Independent

The main problem with the carpenter-contractor today is



job, at the same price, under the same conditions, pay the same rate of wages to their help, and one make money on the job, while the other may lose money, all due to the different methods of management. Many contractors are able to carry work through with much less expense than others, all due to their system of management and the use of improved labor-saving machines, etc., which accounts for the difference in figures in most all cases. It is to save the contractor this waste of time and labor which is overlooked when they submit figures on the job, that the "Little Shaver" portable saw rig was put on the market. This movable saw rig is the best time and money saver put before the carpenter trade in a good many years, being exceptionally handy to move from job to job. It will do a great deal of mill work and make you absolutely independent. Built of wood and well bolted, makes it a strong outfit, light of weight, with no possible chance of breaking, as in cast iron legged tables. Three men can lift it on and off a wagon, making it an easy matter in moving it from job to job. The table, built of iron, is fitted with gauges, which enables cross cutting, rip sawing, mitering, etc. The entire length of the table is 42 inches, and the width 27 inches, with an adjusting screw under same, to raise, as shown in illustration. Two saws, a rip and cross-cut, are furnished with each outfit, a dado head for plowing window and door frames, wrenches, etc. This saw rig will do all of the sawing now done by hand on the job, such as wall boarding, flooring, siding,

how to get his labor done in the most efficient manner and at the minimum cost. Two contractors might take the same

raisers, etc., and cuts them all square and true.

The engine furnished with this outfit is specially built for

Mantels for Every Purpose

Original Ideas in Mantels suitable for Bungalows, Cottages, Concrete or Cement Houses.

Investigate our new Combination Mantel Fireplaces—ideal for Flats and Apartments.

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Lorenzen Mantels are Ahead

The styles are modern—the designs are distinctive—the workmanship is better than other makes sold at higher prices.

Every mantel is made by experienced workmen from highest quality air seasoned lumber in various woods and finishes. The prices are as varied as the style—all the way from \$3.00 to \$250.00.

Our enormous stock is mirrored, and priced, in our catalog—the most magnificent ever issued. Send your name **now** and receive a copy as soon as it comes from the press.

Dollars for Contractors and Owners in Our Proposition

Our latest innovation, the combination **Mantel-Fireplace**, will coin extra dollars for mantel dealers. Something new! Handsomer, richer, and vastly superior to any brick fireplace. We explain this to anybody writing. **Write today**

LORENZEN "The Mantel Man"

315 N. Ashland Avenue. Chicago

The Greatest Handful of Knowledge About the Building Trades Ever Published



The Building Trades Handbook contains more practical knowledge about the building trades than any other book of its size in existence. The book will be found of utmost value not only to architects, engineers, contractors and builders, but as the book is compiled from the Courses of instruction of the International Correspondence Schools, its great value to ambitious workers in all branches of the building trades is at once realized. It includes valuable data on structural design, masonry, bricklaying, carpentry, joinery, roofing, plastering, painting, plumbing, lighting, heating and ventilation. In addition to tables giving the properties of materials used in construction, practical rules for laying out work, and data valuable for reference, it presents approved methods for solving the problems involving strength and stability, which occur in building practice. The processes of calculation are clear and intelligible, and those who are acquainted with simple arithmetic will have no difficulty in following them.

Among the subjects considered are the loads on structures; the strength of materials; the bearing capacity of soils; the width and thickness of footing courses; the dimensions of piers and their foundations; the thickness of walls for different classes of buildings; and the various kinds of stone and brick masonry. Careful analyses are made of columns, beams, and arches of iron, steel, wood, and stone, and of the design and construction of roof trusses in wood and steel. The features of detail peculiar to structural work are also fully explained.

Constructive details pertaining to Masonry, Bricklaying, Plastering, Carpentry, Joinery, Stairbuilding, Roofing, and Painting are treated comprehensively, and much new information is given on the Computation of Quantities and the Costs of Materials.

The chapters on American Plumbing, Gas-fitting, Heating and Ventilation contain much practical information never before published. They include tables, rules, formulas, recognized maxims, hints on the best modern practice and on the most approved apparatus and materials.

Partial List of Contents: Arithmetic, formulas, mensuration, table of circles, geometrical drawing, structural design, strength of materials, columns, beams, and girders, strength of rivets and pins, roof trusses, arches, masonry, brickwork, carpentry and joinery, roofing, plastering, plumbing, heating and ventilating, gas-fitting, estimating quantities and costs, painting and papering, etc., etc.

The book is $3\frac{1}{2}'' \times 5\frac{1}{2}'' \times \frac{3}{4}''$ in size and is easily carried in the pocket.

SPECIAL OFFER: To better introduce I. C. S. Instruction matter to members of these trades, we are making the following offer. We will send this book, containing 372 pages, 220 illustrations, bound in cloth with gilt titles and top, printed on high-grade book paper in clear type, and regularly sold at \$1.25, to those sending us the coupon attached and

50c

International Textbook Co.
Box 910-P, Scranton, Pa.

I enclose 50 cents which together with this coupon entitles me to one copy of the Building Trades Handbook.

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this kind of a rig, and it has a belt tightener attachment which keeps the belt from getting loose and can be adjusted in a few minutes. It will develop $2\frac{1}{2}$ horsepower under continuous brake test, which gives an abundance of power to run the saw.

The main feature of this rig is the total absence of vibration. This is very important where fine work is to be done, to work on a table that is absolutely steady, and it was to overcome this very point that the General Manufacturing Company, 129 Michigan street, Milwaukee, Wis., worked two years to put this rig on the market the way they are putting it out today. They absolutely guarantee each and every rig, and will be glad to give more information to those who are interested in this time and money saver. The price they are charging for this outfit is big value for the money, and no contractor will make a mistake in ordering one of these rigs.

Roofing Economy vs. Roofing Extravagance

Nowhere does the old saying that "the best is the cheapest" hold more true than in the choice of roofing materials.

Every builder and architect feels and preaches that a cheap roofing is a "trading down" proposition—always worth less than it costs, despite its low cost, frequent paintings and repairs, and the possible damage to buildings and contents, is a positive extravagance.

In the Asbestos "Century" shingles, put on the market some four years ago, is found a roofing whose use is the truest economy.

The economy begins with the first cost. Being one-half lighter than slates, a lighter roof frame is used—a considerable and actual saving in these days of high lumber prices. The shingles are all exactly sized; and some styles are already punched with nail holes, so that the alignment is not only more certain, but more quickly done—a saving in labor.

No painting is ever needed, at any time.

No repairs have to be done. Asbestos "Century" shingles are improved by dampness, and by freezing, and thawing, which hasten the hydration and crystalization on which the maturity of the shingles depends. Hail can not break them. They expand and contract so uniformly, and the asbestos fibers reinforce the concrete in every direction so thoroughly that the shingles do not crack. Tramping over them by linemen does no damage.



Asbestos "Century" Shingles as a Sheathing

They protect the buildings absolutely from sparks on the roof (the cause of one-fifth of all the fires in the country),



CARBORUNDUM



The Carpenter or Mechanic whose tools are always sharp can do more work and better work in a day with less real labor.

CARBORUNDUM SHARPENING STONES

Put a keen lasting edge on a tool and do it more quickly than any other sharpening stone.

ORDER A TRIAL STONE FROM YOUR DEALER—DON'T TAKE ANYTHING ELSE

Just to introduce you to Carborundum let us send you our POCKET STONE—in neat case.

—BY MAIL 15 CENTS—



THE CARBORUNDUM COMPANY

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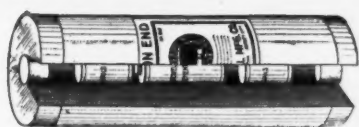
It's expensive business to have a high priced interior finisher whittling with a block plane, testing with a square or bevel protractor, and whittling some more, when one stroke with a Fox Trimmer is all that is needed.

We'll send our new Trimmer catalog on request

FOX MACHINE COMPANY

756-776 N. Front St.

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Here's the Roofing You Ought to Use

Just as ready roofing has demonstrated its superiority over shingle, slate and tin roofs, so has MONARCH Asphalt Roofing conclusively proven its superiority over the usual ready roofing.

Genuine asphalt is acknowledged to be the most satisfactory roofing saturation and coating so far known. We use genuine Pitch Lake Trinidad Asphalt and all wool felt in the manufacture of MONARCH, and our method of applying the asphalt saturation, coating and mineral surfacing makes MONARCH a solid and perfectly combined whole—impervious to water and proof against flying fire-brands.

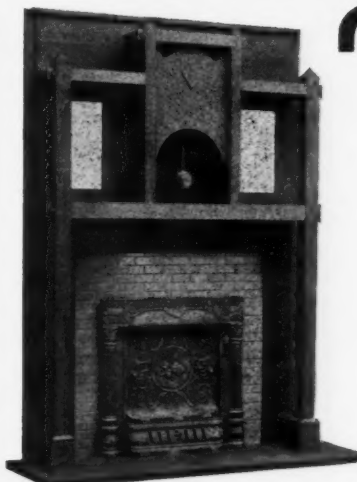
Know what you are buying—there is no substitute for genuine asphalt roofing. Send for Sample Set M-2.

Carpenters and Builders.—We know Monarch will justify our claims. You cannot find a better Roofing at any price. We earnestly desire you to give it a trial. If your dealer does not carry Monarch we will see that you are supplied direct.

Stowell Mfg. Co., Jersey City, N. J.

Philadelphia Chicago

Kansas City



Central Mantels

are distinctive in character, workmanship and finish. Twenty years' experience catering to the wants of the home builders enables us to know and meet their wants.

Our factory being equipped with all of the most modern labor-saving devices and keeping on hand

"Reputation and Quality Count" constantly an enormous stock of raw materials, places us in a position to sell **better** mantels **cheaper** than it is possible for you to buy elsewhere.

We can furnish any style from Colonial to Mission, and in any wood or finish, at prices ranging from \$10.00 up.

The above is one of the many designs shown in our 112 page catalog, which is the finest and most complete mantel catalog ever issued. Catalog sent free on request to Carpenters, Builders or anyone building a home.

CENTRAL MANTEL COMPANY
No. 1247 Olive Street - St. Louis, Mo.

It's Worth While



to look into store front construction before specifying. If you will investigate, you will find the leading architects and builders are selecting the Petz system of metal store front construction, because of its great strength and durability, because of its artistic possibilities and because it gives the greatest possible amount of light and window display space.

It allows glass to be set from outside. You will understand why it gets the endorsement of the leading architects and builders, if you will send for our booklet "Modern Store Front Construction." It gives full description and illustration of our different bars. You will find our bars illustrated in Sweet's Index for 1908, on page 648.

Detroit Show Case Co.

Show Case Makers to Progressive Merchants.

491 West Fort Street

DETROIT, MICH.



and smother a fire accidentally started within the building.

"They outlive the building, without painting or repairs."

Builders who want to hook up with the live issues in roofing should get in touch with the Keasbey & Mattison Company, Ambler, Pa.

Mastic Roofing

Great advances have been made of late in the manufacture of what is commonly known as prepared or ready roofings. It is a fact, however, that no really good roofing material can be sold cheap. There are many cheap substitutes for the best grades of ready-to-lay roofings but they do not possess the necessary lasting qualities and the dealer in building material, as well as contractors and builders, should be very careful about selling or recommending the use of such cheap substitutes. The customer always looks to the contractor or dealer for quality protection in the material used in buildings, this being especially true about roofing material.

The rapid growth in the popularity of ready roofings can be traced to its many advantages and the fact that responsible manufacturers are making these roofings of such superior quality that they do not hesitate to stand behind them with good guarantees.

On another page in this issue will be found an announce-

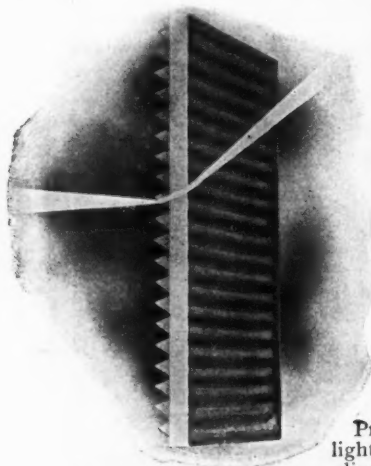
ment about "Mastic Roofing," together with a special offer, which is made by the National Roofing Materials Company, of Edwardsville, Ill. This company has a very superior product in their Mastic roofing, the basis of which is a specially woven jute, for first strength, with a heavy ply of pure-all-wool felt on the back as a cushion, the whole being bound together and heavily coated with fifty-five pounds of asphalt mastic to the square, and having a very durable finish of mixed mica and sand on the weather side.

The illustration herewith shows an exact facsimile of a piece of Mastic roofing, 2½ by 1½ inches, which shows the attractive and novel effect produced by the mixed mica and gravel finish.

It is a fact that on the Pacific coast, where Mastic roofing has been most extensively used for years, it has gained a reputation that has resulted in many contractors and builders using it almost exclusively. For the purpose of rapidly introducing this roofing into every community, the company is offering special inducements to contractors and builders who lay the first Mastic roof in their locality. The company is also appointing exclusive selling agents in various places where they have not already an agency established. They are thoroughly reliable manufacturers and live up to every promise or guarantee made. Besides Mastic roofing, they manufacture several other roofing and building material products. Their proposition is worth looking into by contractors and builders in any way interested in first quality roofing.

Practical Builders' Hardware

Carpenters and builders are always interested in a line of goods that are practical. Why? Because they are mechanics and know when they see an article that has merit. As a pretty general thing they are not fooled by mere appearances,



Luxfer Prisms

Turn Darkness Into Light

Luxfer Prisms take the light of the sky and focus it to any part of the building.

Luxfer Prisms flood the dark places with daylight and render artificial light unnecessary.

The secret of the successful results that always follow Luxfer Prisms is in the sharp, accurately cut angles. Sheet prisms cannot give such results; they merely throw the light on one spot—Luxfer Prisms distribute it into every nook and corner. The light rays are not merely reflected; they are scientifically directed—bent—focused. They are drawn from the sky to places they would otherwise never reach.

Contractors Can Install Luxfer Prisms

Ninety per cent of the total installations are on our principle. This is appreciable evidence of superiority of the Luxfer system. It is testimony of the fact that architects and contractors are not risking their reputation by installing imitations.

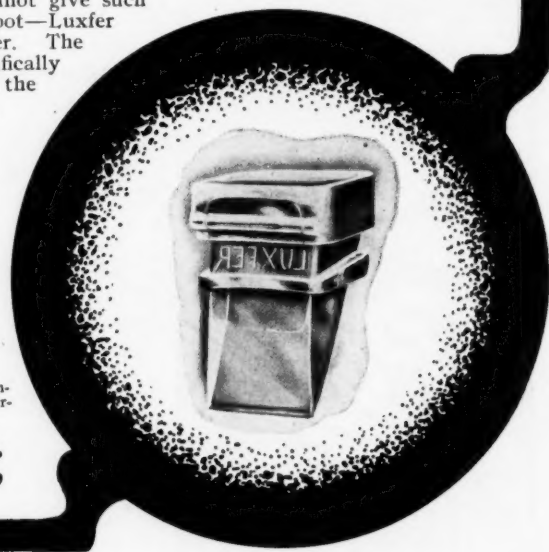
Wherever a dark room or basement exists there is a need for Luxfer Prisms. The rental value of each room is increased, while the utility of a daylight basement is unquestionable.

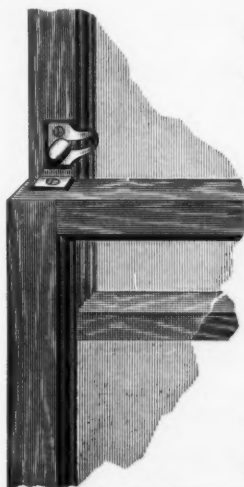
Contractors contemplating Luxfer Prisms can obtain ready-to-lay slabs made up to any specifications, at our shops.

Send for "Daylighting"

Drop a postal for our booklet—"Daylighting." Gives you an insight into the most advanced method of daylighting and makes interesting reading for contractors.

American Luxfer Prism Co.
1600 Heyworth Building Chicago





Ventilation Without Risk

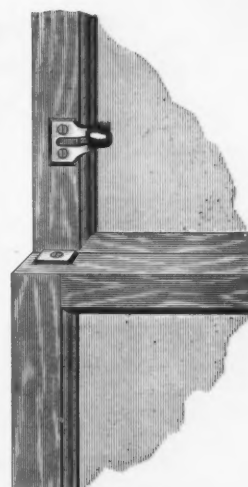
IVES PATENT VENTILATING LOCK

A safeguard for ventilating rooms, allowing windows to be left open at the top, the bottom, or both top and bottom with entire security against intrusion, a permanent fixture easily applied and quickly operated, affording three times more protection to the window than the ordinary sash fastener.

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THE

Shrp-Shavr Safety Razor

At 25 Cents

is the quickest selling and biggest business-building proposition you've ever had a chance to get in on.



A complete Safety Razor, with a money-back guarantee FOR 25

CENTS—an absolutely virgin field of customers to draw from—A CONTINUOUS SALE OF BLADES—a magnet that pulls a mass of new buyers into your store for shaving-soap, strops and all shaving accessories—and a clear profit of 50 per cent on every single one of the hundreds of razor sales—that's exactly what you're losing every day you delay in putting in a stock of Shrp-Shavr Razors.

We're spending thousands of dollars to create customers for you. Co-operate with us. Do your share and get your share. We're working tooth and nail for you in the magazines. Won't you take your part of the profits that are waiting for you?

Write your jobber, or if he will not supply you, order direct, and get your share of the Shrp-Shavr business.

PRICES

SHRP-SHAVR RAZOR with one blade, per dozen - - - \$2.00
SHRP-SHAVR BLADES, 5 in a pkg., per dozen pkgs. - - - 2.10
SHRP-SHAVR STROPPERS, per dozen - - - .75

SHRP-SHAVR RAZOR COMPANY

70 Duane St

NEW YORK CITY

The Roof that Proves—Sun-proof and Rain-proof: Needs no Paint or Repairs



If you are interested in Roofs—the best and most economical Roofing to use, for all kinds of buildings—let us send you samples of "Rubber Sanded," and our 32-page booklet. Write today—before you forget it.

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prepaid to any place in the United States without a cent deposit in advance, and allow ten days free trial from the day you receive it. If it does not suit you in every way and is not all or more than we claim for it and a better bicycle than you can get anywhere else regardless of price, or if for any reason whatever you do not wish to keep it, ship it back to us at our expense for freight and you will not be out one cent.

LOW FACTORY PRICES

We sell the highest grade bicycles direct from factory to rider at lower prices than any other house. We save you \$10 to \$25 middlemen's profit on every bicycle—highest grade models with Puncture-Proof tires, Imported Rollerchains, pedals, etc., at prices no higher than cheap mail order bicycles; also reliable medium grade models at unheard of low prices.

RIDER AGENTS WANTED

in each town and district to ride and exhibit a sample 1909 Ranger Bicycle furnished by us. You will be astonished at the wonderfully low prices and the liberal propositions and special offers we will give on the first 1000 sample going to your town. Write at once for our special offer.

DO NOT BUY a bicycle or a pair of tires from anyone at any price until you receive our catalogue and learn our low prices and liberal terms. BICYCLE DEALERS: you can sell our bicycles under your own name plate at double our prices. Orders filled the day received.

SECOND HAND BICYCLES—a limited number taken in trade by our Chicago retail stores will be closed out at once, at \$3 to \$8 each. Descriptive bargain list mailed free.

TIRES, COASTER BRAKES,

everything in the bicycle line at half the usual prices. DO NOT WAIT but write today for our Large Catalog beautifully illustrated and containing a great fund of interesting matter and useful information. It only costs a postal to get everything. Write it now.

MEAD CYCLE COMPANY, Dept. T122 CHICAGO, ILL.

nor led into buying goods of no real practical value. They know that it is to their advantage and lasting interest to use substantial, practical goods in all their building operations. And wherever it is possible to unite these qualities with low or reasonable cost, their interest is indeed aroused.

Watch and see what the Diehl Novelty Company, of Sheboygan, Wis., has to offer in the line of builders' hardware.

Their line of goods will be shown in this and in future numbers of the AMERICAN CARPENTER AND BUILDER, the special features being presented at the different seasons when they are to be used.

Ask your dealer for their goods. Their catalogue will be sent upon request to any address in the United States, or they will send samples on receipt of ten cents in stamps to pay postage on same.

Northwestern Cement Show

The following is a partial list of exhibitors at the fifth annual convention and exhibition of the Northwestern Cement Products Association at The Armory, Minneapolis, March 2, 3, 4:

Alpena Portland Cement Company, Alpena, Mich.
AMERICAN CARPENTER AND BUILDER, Chicago, Ill.
American Steel & Wire Company, Chicago, Ill.
Anchor Concrete Stone Company, Rock Rapids, Iowa.
Ashland Steel Range & Manufacturing Company, Ashland, Ohio.
Atlas Portland Cement Company, New York City.
Louis Auer & Son, Milwaukee, Wis.
Ballou Manufacturing Company, Belding, Mich.
C. G. Bochert, Minneapolis, Minn.
Cadwell & Brown Company, Minneapolis, Minn.
Cement Era, Chicago, Ill.
Cement Machinery Company, Jackson, Mich.
Cement Tile Machinery Company, Waterloo, Iowa.

Cement World, Chicago, Ill.

Chamberlain Machine Works, Waterloo, Iowa.

Concrete Publishing Company, Detroit, Mich.

Dealers' Building Material Record, Chicago, Ill.

Nels Ericson, Minneapolis, Minn.

Fairbanks, Morse & Co., St. Paul, Minn.

Fowler & Pay, Mankato, Minn.

Hayden Automatic Block Machine Company, Columbus, Ohio.

Ideal Concrete Machinery Company, South Bend, Ind.

Improvement Bulletin, Minneapolis, Minn.

International Correspondence Schools, Minneapolis, Minn.

Interstate Investment & Development Company, Charles City, Iowa.

Journal of Modern Construction, Minneapolis, Minn.

Kerlin Automatic Post Machine Company, Delphi, Ind.

Kettle River Quarries Company, Minneapolis, Minn.

The Knickerbocker Company, Jackson, Mich.

Kramer Automatic Tamper Company, Minneapolis, Minn.

Landers-Morrison-Christenson Company, Minneapolis, Minn.

McElroy Post & Pole Company, Cedar Rapids, Iowa.

Marquette Cement Manufacturing Company, Chicago, Ill.

Miles Manufacturing Company, Jackson, Mich.

Miracle Pressed Stone Company, Minneapolis, Minn.

N. J. Morehouse, Waterloo, Iowa.

National Stone Manufacturing Company, Minneapolis, Minn.

Nelson Bros. Paving & Construction Company, Minneapolis, Minn.

Northwestern Expanded Metal Company, Chicago, Ill.

Northwestern Lime Company, St. Paul, Minn.

Northwestern States Portland Cement Company, Mason City, Iowa.

Peerless Brick Machine Company, Minneapolis, Minn.

Rapid Cement Machine Company, Minneapolis, Minn.



Money Saving Catalog Free

PLUMBING AND HEATING MATERIAL

Direct to the Consumer at Factory Prices

Our perfect ALL IRON PIPE system of plumbing will enable any handy mechanic to install the material on farm or in city. Send us a list of your needs. All we ask is an opportunity to figure on your wants. We carry everything necessary for installing this class of work. Soil pipe, lead and water pipe and fittings of all kinds, etc.



Two of the latest appliances for Iron Pipe plumbing mentioned in the article on "Plumbing and Heating The Cement Home" by our Mr. Breese. This article appears in the Feb., 1909 issue of the Cement World.



WE SELL DIRECT TO CONSUMER

We will furnish you with a complete pneumatic or air pressure water supply outfit that will furnish you running water the same as city water works. Prices range from \$40 upward.

We will furnish you complete, house plumbing outfit like shown in this picture, including the pneumatic water supply system, the bath room outfit, the kitchen sink and range boiler and all the pipe and pipe fittings to install from \$125 upward.



\$39.00 for this complete Set of High Grade Bath Room Fixtures (see description)

AUTOMATIC WATER SUPPLY SYSTEMS

This is our No. 5 Bath room combination, regularly listed in our catalog for \$45. We are making a special offer to readers of the Cement World on this of... **\$39**

We sell direct to the consumer.

The Bath Tub is 5 feet long; white porcelain enameled inside and over the rim, and is trimmed complete with full nickel trimmings.

The Lavatory is cast iron, heavy white porcelain enameled and trimmed complete with full nickel trimmings.

The Closet is high grade, sanitary, vitreous syphon wash down bowl with polished oak, copper lined tank, and seat and cover to match. All parts high grade.

This offer is for a limited time only.

Other Bath Room Outfits from **\$24.50 to \$125.00**

Write today for new enlarged Catalog No. 103, covering Home Builders' supplies. All prices revised to "Hard Times" basis.

Central Machinery & Supply Co.

2567 Archer Ave., CHICAGO.

COMPLETE HOUSE PLUMBING OUTFITS

Our Offer We will furnish a Complete House Plumbing Outfit for any Home (single stack), consisting of a Pneumatic Water Supply system of 295 gallons capacity.

A High Grade Bath Room Outfit, 5 foot white porcelain Enameled Bath Tub, complete. A Sanitary Low Tank Closet complete and a beautiful white enameled Lavatory, complete. Kitchen Sink, of white porcelain enameled cast iron, with heavy brass fittings. A 30 Gallon Range Boiler, of 200 lbs. pressure test.

All Soil Pipe, Waste Pipe and threaded fittings from ground to roof. All Supply Pipe for Hot and Cold water and necessary fittings. Entire Outfit, including instructions so that any handy man can install it, for **\$165.00**

Other outfits from \$100.00 up. Bath Room Outfits from \$24.50 to \$125.00. Pneumatic Water Supply Outfits from \$40.00 up.

STEEL ROOFING 50,000 squares of Heavy Steel Roofing. This is made from metal used in the manufacture of soap. Never exposed to the weather and never nailed.

10 times better than the lightest weights of new. Coated both sides with weather proof "Gelatine" coating. Guaranteed perfect and free from nail holes.

Flat, per 100 square feet **\$1.50**
Corrugated, per 100 square feet... **\$1.75**

We Sell Direct to the Consumers HEATING PLANTS

Don't think you cannot afford a modern Hot Water or Steam Heating Plant till you get our figures. Special price for first plant in each locality. Plans free. Tools loaned.



We send FREE detailed estimate on receipt of rough sketch or plan of the building to be heated. Prompt attention. Everything made satisfactory or money back.

Money refunded if not satisfied.

WHAT KIND OF ROOF?



This is a most important question for the man who is erecting new buildings, or the one who is making replacements or repairs. Decide the question right with a good Tin Roof, made of



32 POUNDS COATING

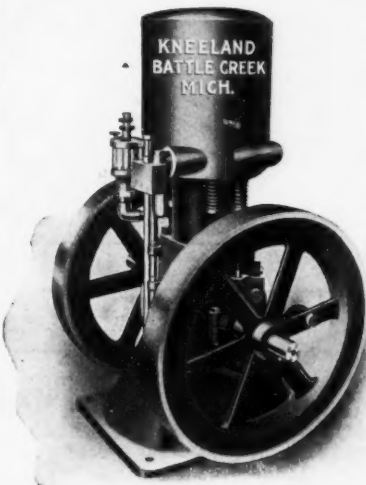
ROOFING TIN

"The Terne which turns the elements."

For the builder it means a saving in time, labor and material; while for the owner it is a guarantee of long continued service as a roofing, with the added advantage of being a thorough protection against fire. MF has an established record for over half a century as a most reliable and satisfactory roof covering. Sold by first-class metal houses everywhere.

AMERICAN SHEET AND TIN PLATE COMPANY,
Frick Building, - - - - - **PITTSBURGH, PA.**

THE KNEELAND Contractor's Sawing Outfit



Write for detailed description of complete outfit. The engine is all shown in the picture except the battery outfit

Write for Engine Catalog and blue print of the best saw table made

KNEELAND MFG. CO.

BATTLE CREEK, MICH., U. S. A.



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Direct to you at mill prices.

No retailer's or middlemen's profits to pay. Sent on your approval. You examine before you pay anything. Let us save you 10% to 25% on your bill. Send your estimate for our figures on Lumber, Lath, Shingles, Sash, Doors, Blinds, etc., delivered at your railroad station.

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YARD 9: : : ST. LOUIS, MO.

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PHILADELPHIA

Makers of

PORCELITE ENAMELS and INTERIOR

FINISHING SPECIALTIES

A POSTAL BRINGS YOU DETAILS

It pays to know
Trinidad Lake Asphalt is nature's
perfect water-proofer.

Genasco Ready Roofing

is made of Trinidad Lake Asphalt. You
know it will last and give your roof
absolute protection.

Do you know that much about roof-
ings made of "secret compounds"?

Be on the safe side and get the roofing with last-
ing life, backed by a thirty-two-million-dollar guar-
antee. The most economical roofing for every
building you erect. Mineral and smooth surface.
Look for the hemisphere trade-mark, and insist on
Genasco. Write for the Good Roof Guide Book
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THE BARBER ASPHALT PAVING COMPANY



Largest producers of asphalt and largest
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Give Your Shoulders FREE PLAY

Don't make them sore
and tired by wearing
the old-style rigid-
back suspenders,
which tug, strain, and
chafe with every move
you make. Get a
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President Suspenders

and learn what real suspender comfort is. The slid-
ing cord in the back of President Suspenders (which
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They rest lightly upon your shoulders and allow you
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Every pair sold with the maker's guarantee—satis-
faction, new pair or money back. If your store-
keeper cannot supply you, we will, postpaid, upon
receipt of price, 50c. Get a pair today.

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Twin City Equipment Company, Minneapolis, Minn.

Universal Portland Cement Company, Chicago-Pittsburg.

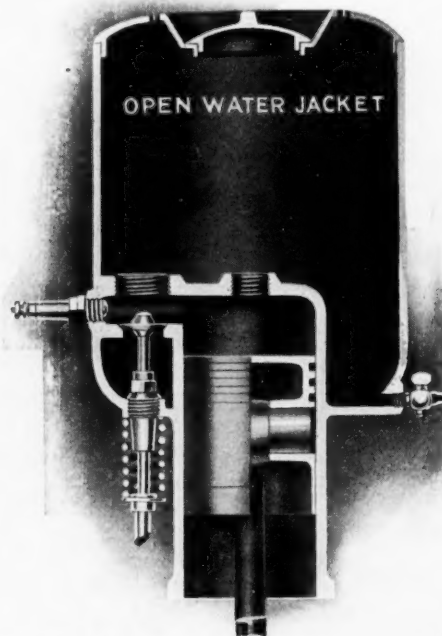
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The Kneeland Manufacturing Company, Battle Creek,
Mich., U. S. A., makes a specialty of contractors' sawing out-
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engine is 2½ horsepower, of the four-cycle vertical open
water jacket type, having a large open water jacket—open at
the top—provided with a cover, as shown herewith. Only one-
half pail of water is required for cooling the cylinder. There
is no tank—no fan—no freezing—no back kick—no exposed
gears. Just what the contractor has been waiting for. It is
a complete self-contained power plant, which can be moved



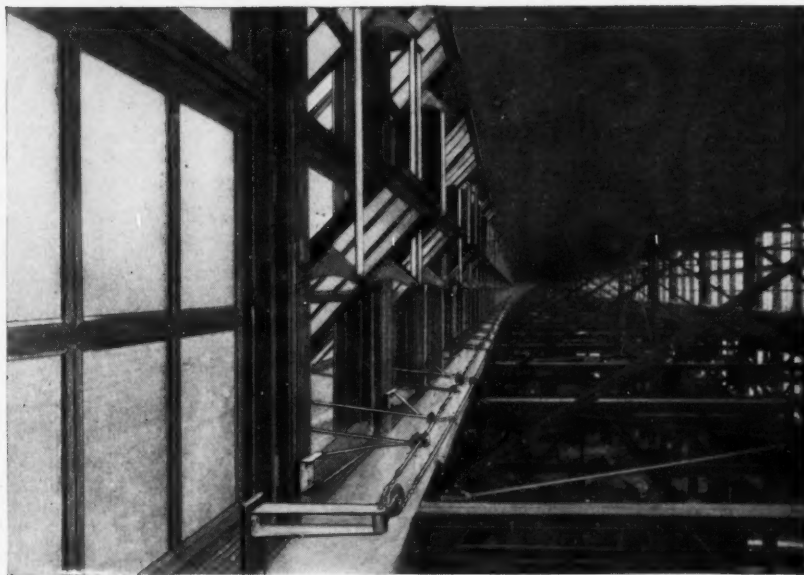
in a jiffy—anywhere; set up in a few moments' time, and
started to work right away. You can work it in your back
yard today and work it five miles up the road tomorrow—
anywhere you like.

They also manufacture 3, 6 and 9 horsepower engines of
the four-cycle type. These engines are mounted on skids
with rotary circulating pump and small water tanks. Con-
tractors should write them for their descriptive catalogue.

"The Trough with the Lid"

Though the eaves troughs have probably caused the public
more trouble and dissatisfaction than any other article on
the market, yet there has been little, if any, improvement in
their construction for the past fifty years. It is true that
there are various forms and styles of eaves troughs in the
market today, but in regard to practicability, actually no pro-
gress has been made. Every manufacturer has contented
himself by imitating his predecessor—constructing the eaves
troughs in such a manner as to permit not only water to
enter—but also all the trash that may fall from the roof.

Cassen's Ideal eaves trough effectually overcomes all the



D. L. & W. R. R. Locomotive Shops, Scranton, Pa. 1650 square feet. 60 sashes.
400 linear feet in two lines operated with one gear.

shows how rust, friction and torsion are eliminated. The tension transmission, bronze bearings and immersed gears make a pull on the operating chain the most convincing feature about POND OPERATING DEVICE. Let us show you the nearest installation.

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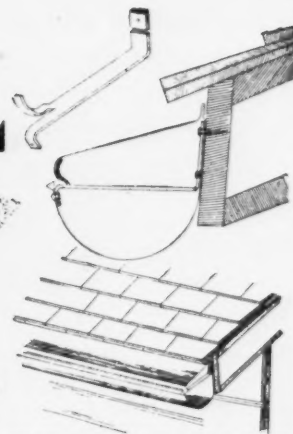
☐ Our data sheet, sent on request, helps you tell us what you want.

☐ We also manufacture Electric and Power elevators for any service.

☐ Estimates cheerfully furnished.

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Cassens IDEAL Eaves Trough



No more clogged eaves troughs; no more rusted eaves troughs; no more frozen and bursting eaves troughs in cold weather. The Ideal is the only practical eaves trough on the market. It's the gutter that lets the water in and keeps everything else out. For it has a lid on.

CASSENS IDEAL EAVES TROUGH
PAT. NOV. 13, 06 OTHER PATENTS PENDING

The illustration is explanatory. Instead of the trough being left open it is covered. This cover is curved in such a way that 180 gallons of water can enter each running foot per hour. But leaves, dirt and other rubbish are carried over the side. Birds cannot nest in it and it is always clean inside.

Contractors have waited fifty years for this proposition. Houseowners are clamoring for it. Architects are specifying it. So right now is the time for contractors to get in line.

SPECIAL OFFER TO CONTRACTORS

We are offering special inducements to contractors putting up the first job of Ideal Eaves Troughs in each locality. We give exclusive agency to progressive dealers and contractors, and assist them in obtaining business.

Send now for a free sample section of this novel trough, illustrated book and details of our offer.

CASSENS MFG. CO.

Edwardsville,
Illinois.

disadvantages encountered in the old style gutter, for it practically excludes all leaves, sand, snow, etc., and also prevents birds from building nests therein, thus not only preventing the clogging and rusting of the trough, but also assuring clean cistern water.

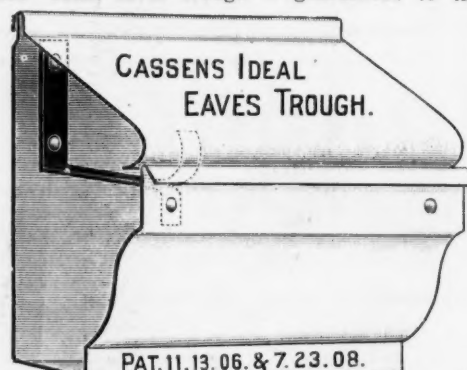
Another fine feature of the trough is that it will not, like an open gutter, freeze up in cold weather. Snow, which nearly always causes the old style gutter to clog, and often break down, cannot enter this modern trough at all. In case of sleet the small opening, of about one-eighth inch, closes up almost instantly, preventing the bursting of the trough as well as that of the downspout. But when thawing weather sets in, the sun striking the metal cover, melts the ice on it and opens the entrance automatically even before the water runs from the roof.

As can be easily seen from the cut, the trough is very simple. The body is made in the usual semi-tubular form, with its rear wall extending upwardly. A shield, having an inclined upper face, is connected to the extended portion of the eaves trough, with its other edge curving downwardly, terminating within the outer wall of the trough, leaving a relatively narrow space for the entrance of the water running from the roof, regardless of how hard it may rain, but effectually excluding all leaves, etc., not because the opening is so small, but because gravity causes all solid bodies to fall over the opening toward the earth. The water, however, ad-

heres to the curved shield and enters the opening, which is practically below the extended portion of the lid.

The cover, which comes in 5 foot sections, is made detachable, so that the gutter may be painted at any time, without removing the trough from building.

Cassens' Ideal eaves trough is guaranteed to take from



125 to 180 gallons of water per running foot in one hour—this is more than it ever rains. It excludes all trash, from a grain of sand to a rubber ball and birds' nests. It is a relief to humanity where cistern water is used for drinking. It is always clean and will not, like ordinary gutter, rust. The man with an agency for Cassens' Ideal eaves trough has an

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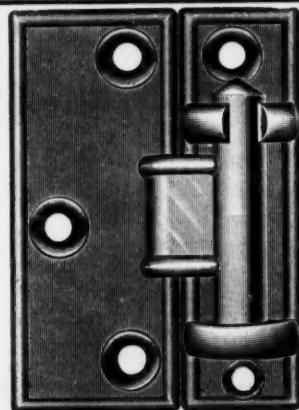
Door can be taken off without removing the hinge. No other hinges made like Diehl's. Ask your dealer for them.

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Manufactured by

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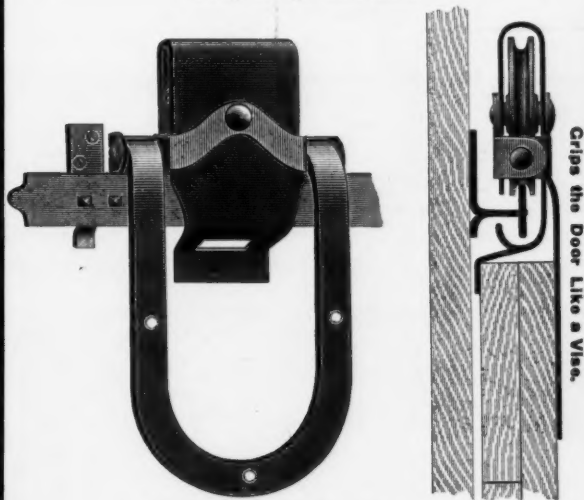
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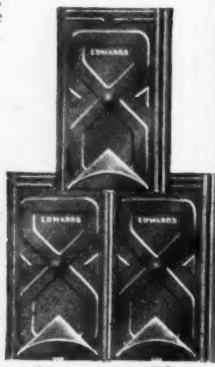
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opportunity and an advantage over all competitors. There is nothing like the "Trough with the Lid," but there ought to have been long ago. The house builder is ready to buy, indeed he has been waiting for a trough of this kind for a long time. Now it is up to you. You can sell the Ideal, you can obtain work with the Ideal that otherwise would go to your competitor. "The Trough with the Lid" has been on the market only a short time, but already the company have been obliged to enlarge their plant at Edwardsville. In other words, Cassens' Ideal eaves trough is a "go." Others are making money—do you want to in your territory?

Write for territory, free samples and prices today. Cassens Manufacturing Company, Edwardsville, Ill.

One Man Power

A few years ago people spoke of the "Seven Wonders of the World," but in this day there are such a diversified number of wonders that the original seven seem very small indeed.

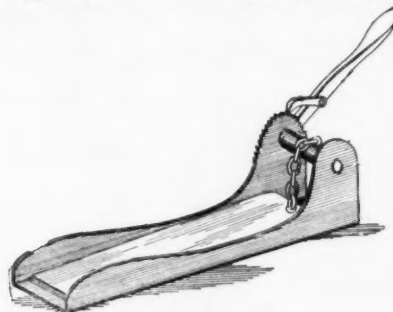
Even ten years ago, had anyone said that one man could make five thousand pressed brick in one day by hand, he would have been labeled a fanatic on the spot; but ten years bring huge changes, for today the Peerless Company, of Minneapolis, Minn., are putting on the market a machine which is well called peerless. The claims they make for it are exceedingly strong, but so far as we know these claims have not been refuted. The Peerless machine will turn out as many brick, so it is claimed, as any \$10,000.00 plant manufactured, and at the same time do this with one-third less men. That statement is strong. The Peerless is remarkable for its ease of operation. By referring to the cut here you will notice the tamping device, which is automatically lifted by two large coil springs that do away with a large percentage of the work. By referring to this drawing you will see that the tamp on the bricks must be absolutely accurate, and this in itself is one of the secrets of successful brick making. Cement brick are more and more coming into public use, inasmuch as they are far superior to clay brick, and by the use of the Peerless, can be made much better and cheaper. Not only this, they are absolutely fireproof, and instead of deteriorating with age, they become harder and harder.

The Peerless machine is substantially made of iron and tool steel, and is strong, compact and durable. Its working parts are the very essence of simplicity, and with ordinary care it will last a life time.

One of the strongest features of the Peerless machine is its price, as one does not have to invest a small fortune in a machine, and another small fortune in getting a place to operate it. Their catalogue tells you all about it. It is an interesting catalogue too, and it will interest every man who wishes to save money. A post card addressed to the Peerless Brick Machine Company, 19 North Sixth street, Minneapolis, Minn., will bring this to you. Write for it.

A New Door Holder

An exceedingly useful and ingenious device that every carpenter will appreciate is the new offering of the A. W. Miller



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THE LOWE BROTHERS COMPANY

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**Lowe Brothers
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better than any other made at that time—more than thirty years ago—so good that the "wise" manufacturers said there would be no market for it. The Lowe Brothers Company has kept on making "High Standard" Paint good; better than "hand-mixed," "strictly pure" paint or any others that have been modeled after it.

People in time found out that "High Standard" was better. It takes years to prove that the paint on a house is better, for the real test is one of wear. Protection is, after all, what the people want, as well as prosperous appearance; "High Standard" wear shows it, and the

"LITTLE BLUE FLAG" is the Sign of Protection.

So more people have been buying "High Standard" Paint each year, and when they have had need to repaint, they have bought "High Standard" again.

That is the best evidence of satisfaction, and there is abundant evidence regarding "High Standard."

And there is a Paint or Varnish for every need—outside or inside—and a way to make the entire house and grounds harmonious—having the beautiful effect of home—and they are all the best of their kind. Sample combinations and booklets on request.

Consult Sweet's Index (1907-8) pages 1378 and 1379 and (1908-9) pages 1282 and 1283.

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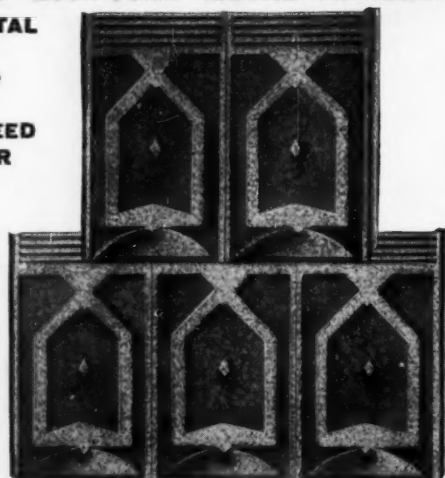
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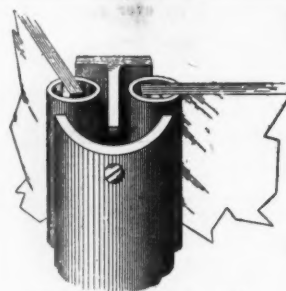
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door holder, a device used to hold a door while mortising for and fitting locks. Every carpenter has felt the need of something of this sort many times—some simple and easily adjusted device that will hold a door firmly and securely while the lock is being fitted.

The cut shows very clearly the construction of this door holder and the principle on which it works. It will be worth many times its small cost to every house builder.

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The carpenter making the most shavings usually gets the smallest pay, and the contractor doing the most sweating, usually is the lowest bidder and loser.

There is a reason for this carpenter to be out of a job, and for the sweating and swearing contractor to be out of money. It is a fact that more contractors go broke than survive on the first job, and more money is lost than made by using the old foggy guess rule, or thumb measure.

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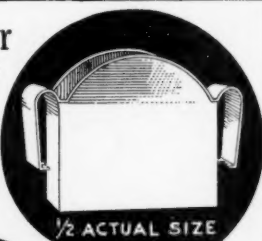


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Send 25c for two 50c locks

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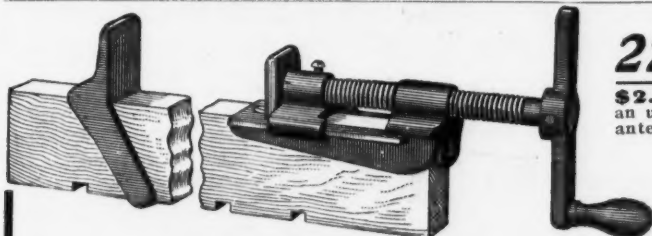
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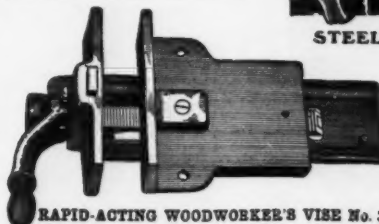
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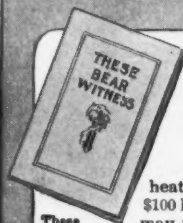
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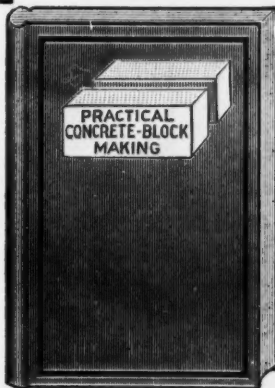
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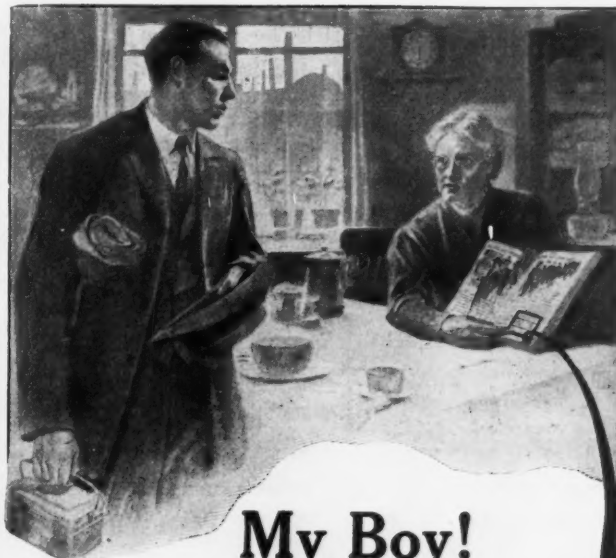
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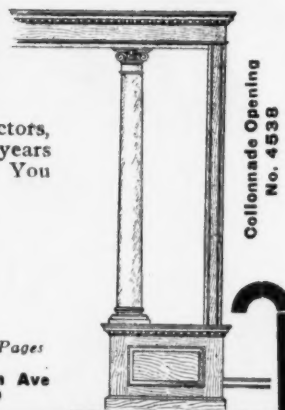
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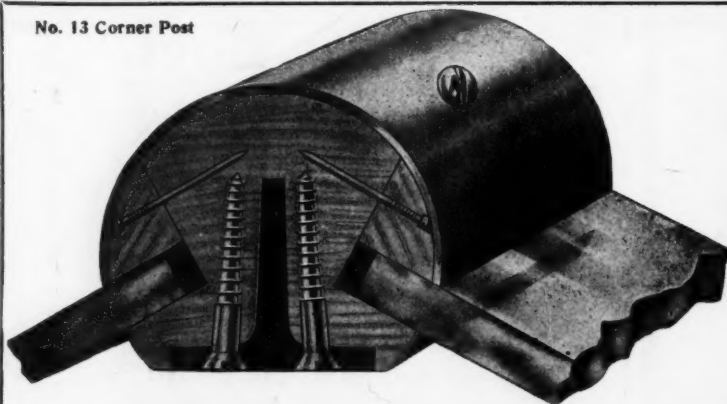
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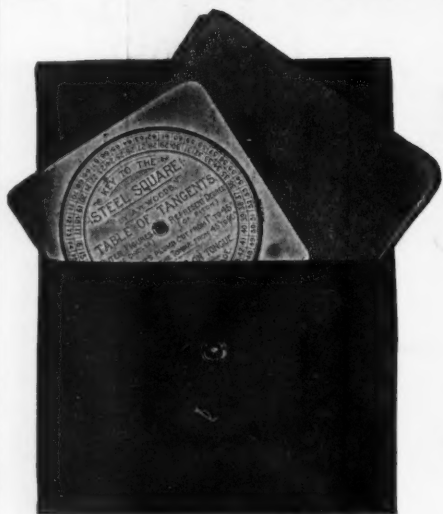


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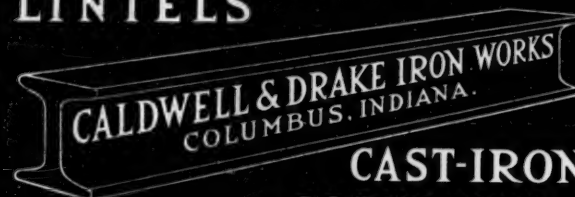
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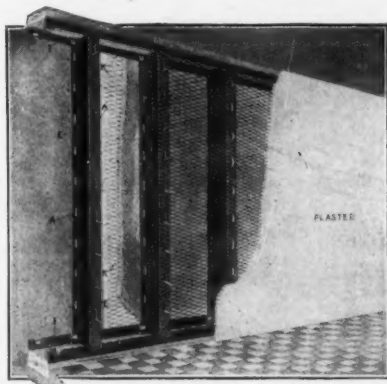
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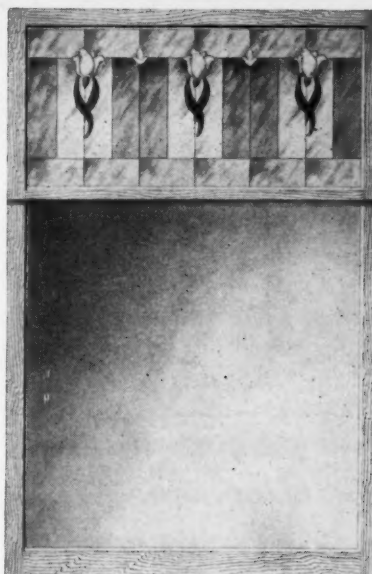
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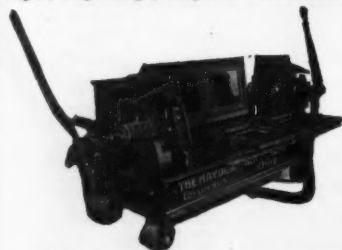
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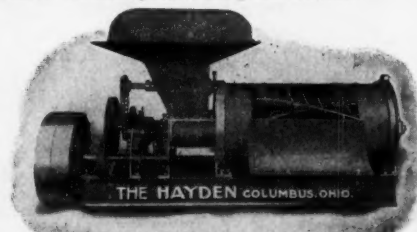
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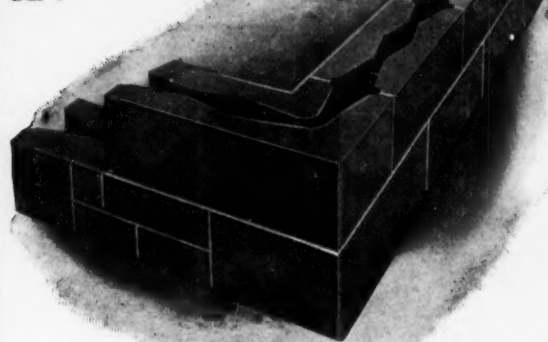
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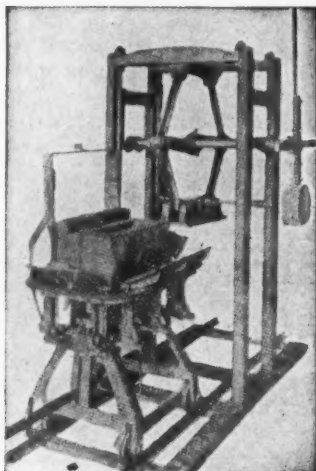
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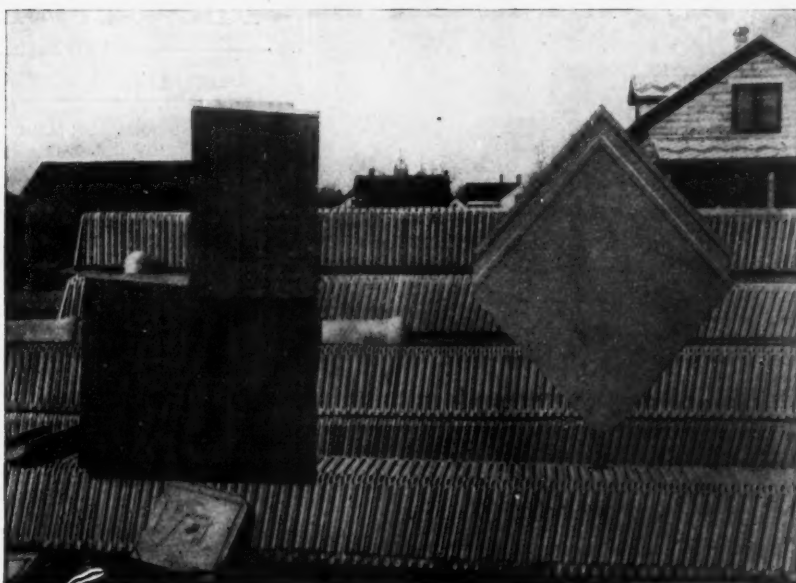
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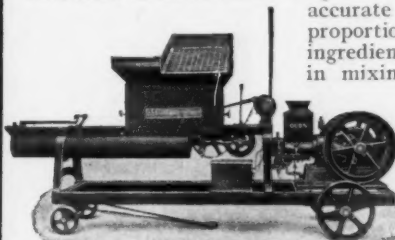
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The Jackson System of Economic Building

It is concrete; strong and warm. It is fire-proof. It is absolutely damp-proof. It costs less than a frame house of the same size and design.

The Jackson System is not a "stucco" method. It uses a solid, durable, poured concrete wall. A dead-air space makes it damp-proof. With it no lumber is wasted for forms.

These are astonishing statements; but they are true. Let us prove them. Write to-day for particulars and for money-making proposition.

F. M. JACKSON CO.

Akron, N. Y.

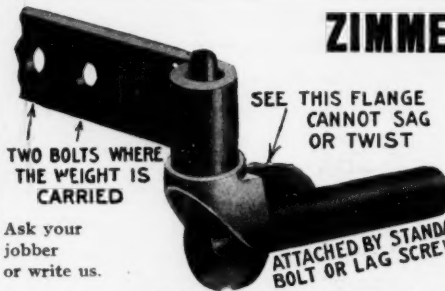


"The Miles" Improved Block Machines

Make the Best Block Face down, Adjustable, Rigid, no Springs or Cogs to bother. Wet mix used. Prices right. Ask about our Metal Lined Universal Adjustable Sill, Cap and Step Mold.

The Miles Mfg. Co. (Inc.)
109 Cortland Street,
Jackson, Mich.

See our display at Chicago, Feb. 18th to 24th.



ZIMMERMAN'S

ANTI-SAG STRAP HINGE

Ask your jobber or write us.

Highest Award Jamestown Exposition.

Easily attached for Heavy Barn and Fire Doors, Gates, Fire Shutters. 22 sizes. 6 inches to 6 feet. The strongest hinge ever offered; superior to blacksmith hinge.

HARRY ZIMMERMAN & CO., Patentees,
25 Wood Street, **FREMONT, O.**

Western Selling Agents, G. F. S. ZIMMERMAN, 4 Arch St., Frederick, Md.



EUREKA MIXER FOR 1909

WRITE FOR CATALOGUE

Eureka Machine Co.
835 May Street, Lansing, Mich., U. S. A.

LOOK AT THIS

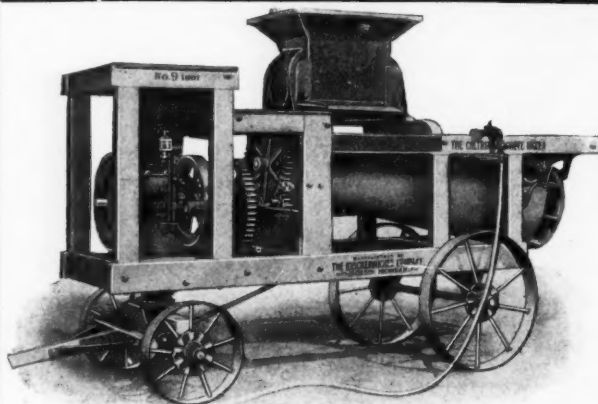
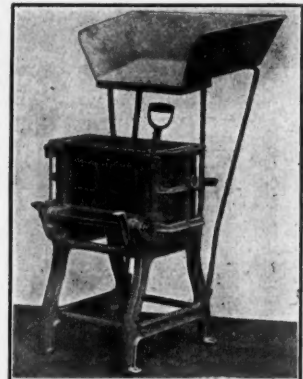
HY-LO 16" Block Machine \$16.50
HY-LO 24" Block Machine \$25.00
Champion Block Machine \$30.00
OHIO 16" Block Machine \$50.00
OHIO 24" Block Machine \$75.00
Springfield Block Machine \$95.00
Champion Brick Machine \$30.00

Don't Buy until you get our catalog. It will save you money. Catalog **FREE**

A BOOK OF CEMENT HOUSE PLANS: Ten cents in Silver or Stamps.

THE REED MFG. CO.

Box 142 Springfield, Ohio



"The Best Mixer They Have Ever Seen"

Sardinia, N. Y., Feb. 1, 1909.

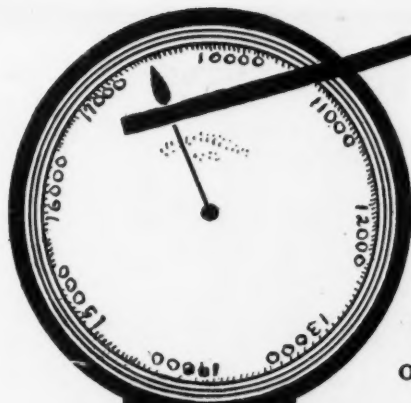
The Knickerbocker Co.,
Jackson, Michigan.

Gentlemen:—I am well pleased with my Coltrin Mixer. Have been laying cement walks and using it on farmers' barns, water tanks and sidewalks. Everyone who has seen it work says it is the best mixer they have ever seen. It saves two men's labor above any other mixer around here. I cemented one barn in December 150'x40' in 20 hours, and we worked inside all the time.

Yours truly,
FRANK J. LUCAS.

The Coltrin Concrete Mixers

Manufactured by
The Knickerbocker Co. **Jackson, Michigan**



17,800 POUNDS PRESSURE

THE Movable Automatic Core that moves down with the pressure of the machine is entirely a new feature. It is a money-saving feature that practical concrete men cannot very well afford to overlook.

This is not the only feature that puts the Sanford right in the lead. The 17,800 pounds of pressure that is put on every block made is a point of advantage that cannot—**positively cannot**—be talked away. Right on the block comes the pressure—just as much force at close of day as in the morning. Speaking of this feature "Concrete Block" says: "It saves labor charge and has the additional advantage of being uniform throughout the day's work."

The Sanford is the **only** face-down hollow block pressure machine in existence. Sold strictly on its merits it will make 300 to 500 veneered hollow blocks or 400 to 600 veneered slab blocks every 8-hour day.

Cores a 6-inch, 8-inch, 10-inch and 12-inch single wall block, 6-inch and 8-inch high face veneer and hollow blocks, two-piece metal tie, two-piece Header bond System, same machine.

As a duty to your clients—to your pocket—to your common sense, you should look thoroughly into this proposition. The free book is just as convincing as it is interesting and proves the advantages of the Sanford are of more real benefit in practice than would appear. A postal to-day is all that's necessary.

**The
Sanford
Concrete
Machinery Co.**

1645-1647 Nicholas Bldg., Toledo, Ohio

"BRADFORD PRESSED BRICK" "BRADFORD REDS"

Trade-Mark—Sept. 12, 1903—July 15 1907



Size 2½"x4"x8½"

Positively Unequalled for Richness of Color
Perfection of Shading and Uniformity of Size

MANUFACTURED EXCLUSIVELY BY

Bradford Pressed Brick Company
BRADFORD, PA.

Standards, Romans, Moulded and Ornamentals
Selected Brick for Mantels

Don't! Tamp Your Life Away “ “ Money “

WHY?

Make 100 Strokes to produce a block
Make 100 Blocks a day

WHEN

You can produce a block with one stroke
You can make 2000 Blocks a day on
a machine that doesn't cost any more.

We could not show cut of Multiplex here and do it justice. But our catalog "R" illustrates and explains it in every detail.

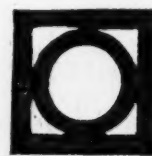
You can make all styles and sizes as well as chimney block on the one machine.

These statements are not advertising statements, we can prove it. Write

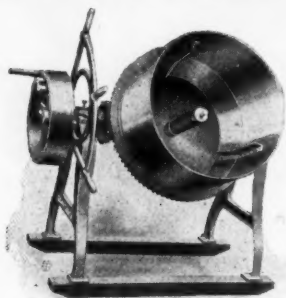
for catalog "R" and you will readily see the reason. Our chimney block is the only one of its kind.

**THE MULTIPLEX
CONCRETE MACHINE CO.**

ELMORE, OHIO



"Standard" Concrete Machinery "Machines of Quality"



Handles wet or dry mix; requires little power to operate; mixes bath perfectly in one minute; self-cleaning; easily charged and dumped; 3 sizes.

Send for catalogue giving complete line of Mixers and Brick Machines.

South Bend Machine Mfg. Co.

General Sales Offices

40 Dearborn Street Chicago, Ill.



You Are
Interested
In Perfect
Blocks—

Blocks which can't be beat in *appearance*—Blocks which will *stand the test*—
Blocks which are *accurate* as to *shape* and *size*. You are interested in being able to make such Blocks at the *Maximum Speed* and at the *Minimum Cost*.
Let us show you the way.

Ask for Booklet.

**DAYTON
CONCRETE
MACHINE Co.**

Successor to
Detrick Concrete
Machine Co.
118 W. McPherson St.
DAYTON, OHIO



BY NATURE — BY NAME

"PEERLESS"

THE WONDER OF THE PRESENT DAY

By the use of the "Peerless" with material mixed, one man can turn out over

12,000 BRICK PER DAY

THE SENSATION OF ALL THE SHOWS

THIS machine is a marvel of simplicity and durability. It has been brought to the highest standard of labor-saving and profit-sharing efficiency, and stands alone and in a class by itself.

No other machine of like character has ever been invented, so far as we know, that can produce one-quarter the number of brick in the same time as the Peerless.

The Peerless is in general use throughout the United States, and its friends are numbered by the thousand.

WHY? BECAUSE Brick are made face down and delivered face up. Brick are of uniform size with sharp edges and true to the square. Brick are more firm and durable than pressed brick. Brick are tamped, not pressed. The Peerless makes 10 bricks at one operation.

Our catalogue tells you all about it.
Write for one to-day.

PEERLESS BRICK MACHINE CO.

19 North Sixth St. MINNEAPOLIS, MINN.

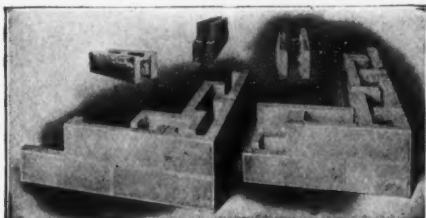
SYSTEMATIC CONCRETE MIXER (1909)

High Wheels, High Grade, Low (triple) Hoppers—Low Price. The talk of the trade for practicability and advantages—SUPERIOR. Outside hoppers only 42 in. from ground. Cement hoppers hold over barrel of cement. Horizontal drive—no vibration. 24 in. wheels in front, 36 in. rear. No springs or chains used. Can lock proportion boxes. All materials drop together for a thorough mix. No materials incased—they are before your eyes all the while. 32 forward and reverse mixing flights. Saves 50 per cent over hand mixing and mixes 25 per cent better than any other style mixer. No experiment. Scores of these Mixers in operation. Send for our Systematic MIXER Catalog, just off the press, regarding our 1909 Model—30, 60 or 125 yd. capacity. Specially adapted for Sidewalk, Street, Bridge and Reinforced Work and Block and Brick Plants. "It Leads."

CEMENT MACHINERY CO.,

Jackson, Michigan, U. S. A.

Let us figure with you on a Block or Brick Machine or anything, as we make everything in Concrete Machinery



THE FRANCISCO BLOCK MACHINE

builds all of the walls shown in cut, down face, wet process, coarse material, with no extra expense, with the exception of cores for wall No. 3 and No. 4, using the same pallettes for all 5 walls. You also make on our No. 4 machine the 32 inch block, 24, 20, 16 and fractional block, using the same pallettes; also all of your long stone to 5 ft., the 8, 10, 12 inch block for width of wall, with no extra expense for parts or face plates. The machine is adjustable in width to 20 inches, in length to 5 ft., in height to 16 inches. Send for new catalog "G." AGENTS WANTED.

FRANCISCO BLOCK MACHINE CO., 338 North High Street, Columbus, Ohio.

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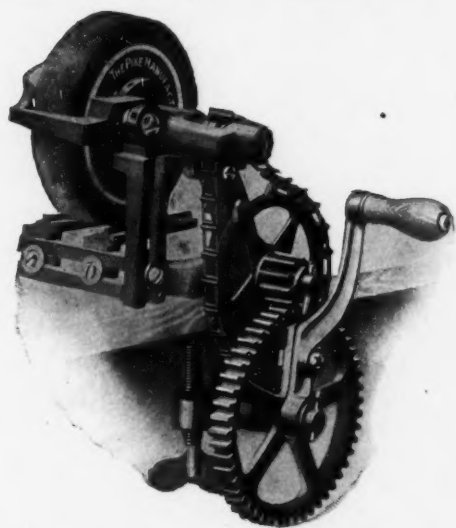
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NOTICE TO ADVERTISERS

ew copy, changes and corrections for advertisements must reach office of American Carpenter and Builder, 185 Jackson Boulevard, Chicago, not later than March 20 in order to insure insertion in April number.

Pyko Grinders

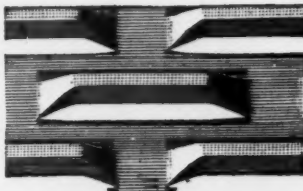


Every mechanic should carry one in his tool kit. Cuts ten times faster than a grindstone. Quickly adjusted. Easily operated, are strong and durable. Each machine fitted with one of our pure corundum wheels—None better for any kind of tool grinding.

Ask for our Pyko Booklet
It shows the complete line

Pike Mfg. Co., Pike, N. H. Dept

SYKES METAL LATH



The lath that is positively different to anything else made; different because it combines more good features.

Cup lath is the only Expanded Metal Lath that can be plastered on either side—cannot be applied wrong because both sides are alike.

We make two kinds—Sykes Expanded Cup Lath, and Sykes Trough Lath. Both are supreme for their own purpose.

The top illustration shows Trough Lath, bottom cut depicts Cup Lath.

NO PICKLED LATH

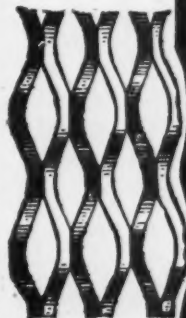
Sykes Lath is absolutely guaranteed not to have been pickled in an acid bath. This means that the weight and thickness is not reduced and is less susceptible to rust. Requires no furring out from studs because it is self furring.

It has been approved by U. S. Government and by leading architects, carpenters and builders throughout the country. In fact, when we say it is the best ever made we are simply stating a proven fact.

Samples and prices mailed upon request.

Sykes Metal Lath & Roofing Co.

NILES, OHIO

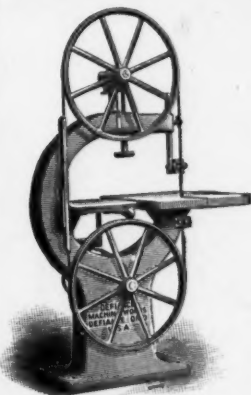


“DEFIANCE”

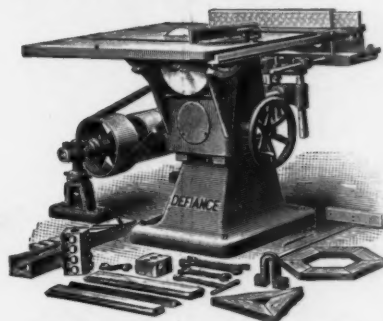
Wood-Working Machinery

Invented and Built By

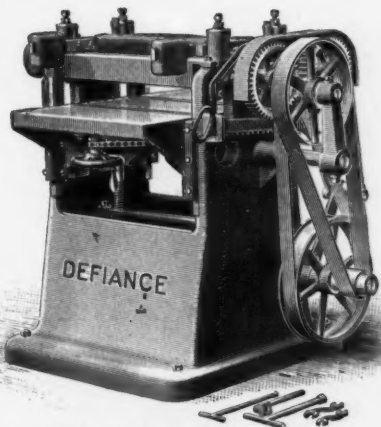
The Defiance Machine Works
Defiance, Ohio



28" Band Saw



No. 8 Variety Saw—Cut-Off and Rip



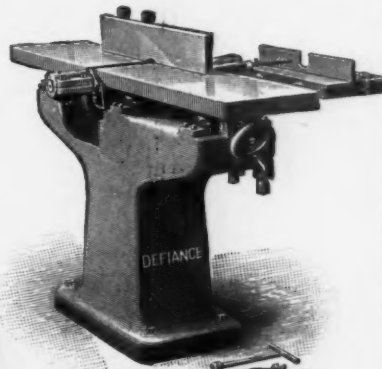
24" Single Surface Planer

These machines are of the highest grade, built in large numbers and sold at moderate prices

..Write for Particulars..



No. 1 Knife Balancing Machine



12" Hand Planer with Boring Attachment

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

5,000 - Home Builders' Bargains - 5,000

Sash, Doors, Windows, Mouldings, Millwork and Roofing of Guaranteed Grade Offered by Gordon-Van Tine Co. at Tremendous Reductions from Regular Prices

WRITE FOR GRAND FREE MILLWORK, ROOFING & LUMBER CATALOGS



7c Porch Brackets



Porch Columns, 57c.



Stair Newell, \$4.00

We will supply you with High-Grade Guaranteed Building Material—the best made in America—at an actual Cash Saving of HALF what your Retail Dealer demands—including Freight. Our Grand Free Catalog offers over 5,000 Bargains in Sash, Doors, Windows, Mouldings, Roofing and All Classes of Lumber. Every item we sell is guaranteed up to the Official Grades Adopted by the Sash and Door Manufacturers' Association. In addition to guaranteeing the Quality of our goods, we also Guarantee Safe Delivery and Complete Satisfaction or Money Refunded Without Delay or Objections.

We operate the Largest Millwork and Lumber Plant in America, selling its Entire Product Direct to Carpenters, Contractors and Builders. We are located in the Center of the Millwork Industry and in the very heart of the Shipping Belt that affords the Lowest Freight Rates.

Drop us a postal today and get our Great Free Money-Saving Millwork Catalogue of 5,000 bargains. Ask for the Free Lumber catalogue. Also the Roofing catalogue.

WE UNDERSELL EVERYBODY

Safe Delivery and Satisfaction Guaranteed

Here in our great Warehouse we carry the largest Reserve Supply of high-grade guaranteed millwork in the World. We load direct from Warehouse Platforms to cars on our own Private Switch Tracks, and ship everything by Fast Freight.

This insures Prompt Delivery to any railroad station in the country. We pack our goods carefully. Our catalogue of 5,000 Building Material Bargains is crowded full of a Splendid Assortment of the Latest Designs of Millwork. As prices are illustrated and described down to the smallest detail. Everything is made so clear and plain that anyone can order correctly. And we guarantee to send you exactly what you order. Our order-fillers are Experts and pick out each article just as carefully as you would if you were here to make the selection yourself. We have been established here since 1865 and have built up this Enormous Business, with Customers in practically every Township in the United States, by giving such Big Values, Prompt Service and Satisfaction that all who send Trial Orders become Regular Customers.

We Saved Our Customers a Million Dollars in 1908

Millwork for Porches at Half Price

We save you 50 per cent on Columns, Newel Posts, Spindles, Rail, Brackets, and other porch material. See porch designs and prices in catalogue.



Good Strong Door Price 77c.



Fancy Front Door Price \$4.50



Four-Light Check Rail well made Windows, 60c.



Hot Bed Sash, 3x6 feet, glazed complete, \$1.69



Colonial Porch Columns \$1.85



A Flight of Stairs Complete \$24.73

LUMBER Save \$100 to \$300 a car

Get Gordon-Van Tine's figures on all the lumber you need. We undersell everybody on lumber of every description. We carry the biggest stock and ship direct from the mill to you at actual saw-mill prices. Millions of feet of best Yellow Pine and White Pine lumber offered at prices that stagger competition. Now is the time to build.

Write for FREE Lumber List

Why Gordon-Van Tine Quality is Highest

We control our own products in every process of manufacture from tree to sawmill, and straight through the model millwork plant of America to the warehouse.

Our lumber is first air-dried and then put through a scientific drying process. Joints are made with heavy hardwood Dowel Pins, glued with imported glue and pressed together by heavy steam power press. Gordon-Van Tine doors are extra strong. The panels have a heavy raise on both sides and are sanded papered on a special machine of our own invention before the door is put together.

Sign and Mail for the Free Books

GORDON-VAN TINE CO.,

458 Federal Street, Davenport, Iowa.

GENTLEMEN:—Please send the FREE BOOKS checked below to

Name

Address

Any of the following books free. Check the ones you wish.

MILLWORK ☐ ROOFING ☐ LUMBER ☐

Scott County Savings Bank

Capital \$250,000 Surplus \$150,000

Davenport, Iowa

To Whom it May Concern: It gives us great pleasure to testify to the reliability, business integrity and honesty of Gordon-Van Tine Co. Their financial responsibility is well over three hundred thousand dollars (\$300,000.00), and they enjoy the highest credit with Western Financial Institutions.

We assure prospective customers that they are perfectly secure in sending the money with their orders, as we understand that if goods are not entirely satisfactory, they may be returned at shippers' expense, and the money will be promptly refunded.

The officers of this company are well and favorably known to us and may be relied upon to do exactly as they agree.

Yours very truly,
J. H. HASS, Cashier.

The entire door is then smoothed with fine strained sandpaper.

All our millwork is made in the most painstaking and workmanlike manner.

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